

WORLD'S LEADING SCIENCE-FICTION MAGAZINE

# Amazing

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stories

KATHERINE MACLEAN'S OUTSTANDING NEW NOVELET THE TROUBLE WITH YOU EARTH PEOPLE

## NEW FEATURES

By BRIAN W. ALDISS, HARRY HARRISON and FRITZ LEIBER

## NEW ARTICLE:

SCIENCE OF MAN By LEON E. STOVER

## NEW FRANK HERBERT NOVEL

Also Stories by ALFRED COPPEL

and ROG  
PHILLIPS



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# Amazing

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# AMAZING AND THE NEW WAVE

## Editorial by Harry Harrison

There is no New Wave in science fiction. Or, to put it another way, AMAZING is the New Wave.

This little exercise in Zen thinking is intended to do more than capture your attention. It is the truth. Science fiction is the new wave that washed into existence in 1926 with the first issue of this magazine. I quote no other authority than Isaac Asimov who, in his article titled 'Social Science Fiction' in the critical anthology MODERN SCIENCE FICTION, states that the SF era before 1926 was "primitive" SF, because the concept of regularized science fiction had not yet been invented. Hugo Gernsback did that when he founded this magazine and provided a specific outlet for SF writing. He put down the foundations of the building that we are living in now and, wise man that he was, he allowed for future growth and saw to it that there were plenty of rooms.

To me there are only two kinds of science fiction: the good and the bad. In saying this I do not embrace the theories of the All-embracingists who would take in Lucian's TRUE HISTORY, as well as ARROWSMITH. I mean simply that the stories that appear in science fiction magazines are SF, as are the novels labeled the same. This field of literary endeavor was born in 1926 and H.G. Wells

is its father. It has struggled through years of indifference and is now enjoying a moment of some small glory. It will never take over and swallow all of modern fiction: neither will it be easily ingested by mainstream fiction. It is exactly what it says it is, and it is what I happen to be pointing to when I say the magic words "science fiction." And that is all the definition you are going to get out of me.

The present New Wave is therefore two things: it is bad SF and it is good SF. When bad it should be consigned to the nether cellars of our building with the rest of the cobwebbed debris of the years. When it is good there are plenty of rooms it can slip into and feel comfortable.

In the coming issues you will find good stories of the type others refer to as "New Wave" in these pages. You will also find good gadget stories, good time travel yarns, good first-contact fiction, good space opera . . . is there any point in going on? We will not buy bad stories, that is our only taboo.

If we have a particular love at the moment it is probably for what the Good Doctor Asimov called "so-called science fiction" in the same article. He defined it thusly: "Social science fiction is that branch of literature which is concerned with the impact of

scientific advance upon human beings." I think that stands as almost a definition of all good modern SF. We are social animals, and that is our strength and our weakness. Read Katherine MacLean's story in this issue if you want to see what I mean.

In the non-fiction department we are adding a number of new features to the magazine. Brian W. Aldiss's LONDON LETTER is one such innovation. SF is transatlantic and the membership rolls of the Science Fiction Writers of America are studded with Scotsmen and Englishmen, with an occasional leavening of the Irish and possibly the Welsh. London is the other main SF publishing center and Mr. Aldiss will report the major events of SF interest occurring there.

The Italians are very excited about what they call *fantascienza*, and a MILAN LETTER is in production. The Germans are reading more *Zukunftsträume* lately and I hope our MUNICH LETTER will explain the difference between that and *Utopisch-technischeromane*. The nearest thing to a MOSCOW LETTER in preparation is a BELGRADE LETTER, but we are still hoping. However a SAO PAULO LETTER is definitely on the way because there are exciting things happening in Brazil.

Also in this issue is the first of what will be a regular series of science articles, to be presented under the generic title of SCIENCE OF MAN. (We originally considered calling it SCIENTIFACT, but that is a little too incestuous as well as in-group.) These will be written by Dr. Leon E. Stover who is an anthropologist, a Sinologist, an Associate Professor at Illinois Institute of Technology—with a joint appointment from the

Department of Sociology and the Department of Language, Literature and Philosophy—a contributor to the U.S. ARMY AREA HANDBOOK ON CHINA, as well as holding an award certificate from the Tokyo Fire Department. We are lucky to have him as a friend of science fiction. His articles will lay more stress on the non-physical sciences than is usual in the SF magazines. That this stress is needed in certainly proven by NEANDERTHALS, RICKETS AND MODERN TECHNOLOGY in this issue. I had a number of cold spinal shivers when I finished it, so I wrote to the author and asked him if nothing could be done about this situation. His response extends a small crumb of hope:

*Some of us from different departments here at IIT have grouped to form a Committee for Metatechnology. Under the metatechnology umbrella we mean to focus, into one sense of the problem, the relation of technology to other aspects of our national culture that are not ordinarily thought of as relevant. We hope to build the values which go with technological choice into the educational process.*

THE FUTURE IN BOOKS is still with us, with reviews by different specialists. Fritz Leiber needs no introduction, and LeRoy Tanner barely deserves one. The latter is an antiquarian, a fellow of one of the lesser Cambridge colleges, and notorious for being, what the British call, bloody-minded.

With the next issue we will begin a letter column. We would like very much to hear from our readers and to get their reaction to this magazine. The better letters will be printed and the best suggestions followed.

The Editor

# THE TROUBLE WITH YOU EARTH PEOPLE By KATHERINE MACLEAN

Illustrated by JEFF JONES

"I CAN'T wait to meet Sir Harrington face to face, and tell him that we are brothers, one soul. All anthropologists are brothers. I wonder what they will tell him to ask me." Working off nervous energy Rem Sh'baar did a running somersault and landed back on his feet.

His favorite wife, Tima, lying on the padded floor, said nothing. She pushed a button that turned the page of the book projected on the ceiling.

"They might ask me to explain anything. I wish I could just tell them what they need." Rem Sh'baar climbed on the relaxing bars, hooked his legs over a bar and hung upside down with his arms folded in a dignified manner. "'Humans,' I would say, 'If you would just organize your pecking order so the old are given license to . . .' Um— They don't say things like that. Perhaps I'd say, 'If you put the food out of reach of the children in puzzle boxes . . .'"



*The culture that you live in is so normal that you are not aware of it. Yet it might be shocking to two aliens from the stars—and their culture might appear even more unusual to us. So what is "normal"?*



"Rem, darling, you mustn't hang upside down when interviewing the questioner. Humans don't do it."

He wrinkled his nose in annoyance. "Human astronauts hang upside down when they announce cartoons on their morning TV show."

"Astronauts only do that on the children's TV shows, Rem. It is to amuse the children," said the musical voice of his best beloved. She was an anthropology student, and a grade higher in credits. She lay on the resilient floor with her arms folded behind her head while she studied the page projected on the ceiling. "You don't want to speak from a posture that implies the listener is a child. He might be insulted."

Rem turned rightside up and hung by his hands, looking sheepish. "I didn't know those cartoons were for children. They seemed very cynical, full of cowardice and betrayal, much too depraved for children. But you're

right. In interview shows the grown-ups always sit still in those uncomfortable chair things and blow smoke."

They glanced at the television set fastened to the wall. It was a hand-rigged imitation of an ordinary Earth made television set, and for several months of study it had been providing Rem with a safe substitute for going down on the ground and studying the natives of Earth up close, where they could reach him. At the moment they looked at it, a young woman was pointing at a weather map, tracing its lines. Her mouth moved silently.

They looked away.

"Maybe I should learn to blow smoke," said Rem Sh'baar. He swung upside down again, then spun himself upright, sitting on top of the bar. They were both tall, slender, and graceful, with rather doglike faces which could have won beauty prizes only at a pet show.

"They don't all blow smoke," said his slender wife. She pushed a button and the pictured page on the ceiling turned into a diagram.

"But they all sit on chairs," Rem decided. "I'll ask them to put two chair things inside the airlock for the interview. Look! there we are again!"

With great interest they both turned to watch the TV screen. The television showed a picture of their spaceship landing. For the thirtieth time in thirty hours it showed a gigantic black and silver beachball descending through clouds, with swarms of planes circling it like gnats. The early morning news commentator came on, gabbling without sound and moving his hands in reassuring gestures.

Rem leaped forward and turned up the sound.

"— to keep the world informed of

every new development of this startling story."

The picture changed to a distant view of orderly crowds, and people on a platform speaking, and swooped in for a closeup of a slender man in a silver spacesuit shaking hands with a stiff looking human in a dark business suit. The solemn voice of the news commentator explained, "Yesterday the visitor from outer space was officially greeted and welcomed by the Vice President of the United States and the Secretary General of the United Nations."

The camera moved in on the scene, enlarging the head of the spacesuited figure. The spacesuit had a clear plastic helmet in a bubble shape, giving a partial view of Rem's face as he turned and began descending the stairs. The film stopped and froze in a still photograph which showed his profile clearly, obviously different from the humans.

"You look very handsome, surrounded by all those flatfaced monsters," Tima said.

"I always photograph well," Rem murmured. "I don't look that fine, really."

A famous announcer suddenly appeared, standing before a background picture of the giant spaceship on the ground, in the middle of a great green park, with the capitol dome shining and the new Spaceman's memorial pylon showing its spike in the distance.

The announcer spoke in his well known tones of fatherly reassurance. "Here we are in the second day of contact between civilizations. Today will be the big day for scientists. They have been requesting permission to interview the visitor from space ever since he first made contact. Yesterday,



the alien being, whose name is Lord Rem Sh'baar, explained that he had been given permission for a short visit to Earth to collect anthropological data. He said he had a short time, but he was prepared to answer a limited number of questions on scientific subjects. He said he had learned English from watching and listening to television science lectures, and he had admired the anthropology lectures of Sir Charles Harrington Smith, and therefore would like to have the list of questions given to Sir Charles. Sir Charles can explain them to him if there is any difficulty with the language. The interview is scheduled for nine o'clock this morning."

The announcer turned and made a solemn gesture at the distant spaceship. "There may be the secrets of the ages locked within that silver sphere. There may be unguessable wonders of science. We can only wait and hope."

A commercial began, showing a mound of dirty clothes flying into an oversized washing machine. Bending forward from the bars, Rem reached forward and turned off the sound. Six tiny humans climbed out of the washing machine and did a jig on the lid, then, with great effort, heaved up a big soap box, tilted it and poured a stream of soap into the washing machine. The words "bio-degradable" zoomed up from the interior of the machine, expanded and vanished. The commercial over, a cowboy on a horse appeared, his horse ambling slowly up the slope of an Arizona desert. An unseen blow sent his hat flying ahead of him. He looked behind, registered alarm, and sent his horse into a gallop.

"Why do cowboys shoot at strang-

ers? Their reasons seem to be excuses. And why do people in towns occasionally form groups to hang someone?"

"You worked out reasons. We've watched a lot of television and the rules of attack seem to be almost the same in each story." Tima rolled over and began to draw a copy of the diagram from memory.

"But not I am not sure we are right. The little humans dancing on the lid . . . and the magic shows . . . There is much lying, much imagination in these television shows. What if television does not represent what they really do?" Rem dropped to the soft floor and sat watching his wife. "Tima, must you study? I am nervous about the interview."

She turned off the book projector and sat up. "If I don't study I might panic. I don't understand them either. You've planned this well, Rem, you studied for it hard. You will get scholar's credits for it."

"If I'm alive," he said.

On the television screen a grim group of humans on horseback galloped along a trail, carrying rifles and a rope. Rem watched it.

"Sir Charles Harrington Smith on BBC says that the anthropologists think that a ground ape was their ancestor. Ground apes are pack animals. They guard each other in packs and have an instinct for mass attack on animals they don't recognize."

She came over and stroked his hair. "You were safe yesterday, so you must be doing the right things when you follow their rules. Just avoid the rules of attack."

He thought. "Yesterday I did not insult anyone or make anyone step aside. I let everyone walk before me.

I ceased to speak when they spoke. I told the important officials that I admired their city and their planet. I touched nothing without permission and handed back everything they gave me. I did not steal. I did not refuse to drink with them, for they did not offer me any liquids. I wore the right clothing they expect from a man from space." He felt his muzzle ruefully. "I can't help looking strange."

On the television the horses were stretched in a wild gallop, the cowboys leaning forward shooting grimly at a fleeing figure far ahead.

They both averted their eyes from the television scene.

In a low voice she said, "Rem, yesterday you were an ambassador. What are the rules for attack on ambassadors?"

"Only to start a war," he replied in a low voice, looking away from the television. "They must think and talk among themselves for a long time before deciding to start a war." He put his head in her lap. "What is your thought now?"

She stroked his hair. "Today you will be answering science questions. That makes you a scientist. What are their rules for attacking scientists?"

He thought, and put an arm across his eyes to think better. "I'm sorry," he confessed apologetically. "I liked the lectures and the stories too much. The scientists seemed to be very important, treated with much support and trust and liking. I only learned language from those shows. I forgot to think about social customs." He sat up suddenly.

She leaped to her feet and went to the television set, pulled a reel of tape from the file box and dropped it into the slot on top of the television. The

cowboys on the screen were busy throwing a noose over a tree branch. They vanished as the recorded signal took hold. Coiled glass tubing and twisted bottles appeared. The slender female turned the sound loud and mad cackling laughter rolled from the set. She held her ears and watched.

A giant hand holding a tiny test tube appeared on the screen. "Just a minute kiddies," said a gleeful voice with giant echoes. "I'll drink some of this secret liquid and shrink down to where you can see me." Glugging sounds followed.

Rem crossed his legs and laughed. "Not *Mad Scientists*, Tima. Those must be wizard and magician myths for children. In adult stories the scientist usually appears in a plot about spying and scientific secrets. I put all the best scientist stories on a reel labeled *Scientific Secrets*."

A small man peered leering from the screen. He wore a scientist's white smock. He pulled at a bushy black beard and waggled thick black eyebrows up and down as he talked. Tima dropped in another tape and the mad scientist vanished.

The two students far away from home sat together on the cushioned floor and held hands and watched while the television set of the strange civilization of Earth showed how scientists were treated.

On the television screen an inoffensive quiet man in a white laboratory coat worked, standing at a tall table with meters and moving graphs. He checked the figures on the meters against his calculations and made notes, and became excited and ran a test three times, checking the figures each time.

His attentive audience of two watch-

ed while the scientist tried to call in other scientists to see, and found the lights out, the building dark and deserted, for he had worked long into the night. He called his home from the office phone and explained his discovery excitedly to his wife, while a spy who listened in on calls from the research building became excited and made a hurried call when the other had hung up. The scientist went down to the street, accepted a lift from a too-convenient taxi and was kidnapped by agents in the taxi, taken to a lonely building, and beaten and tortured, while the torturers whispered demands that he reveal more details of his discovery.

An agent of his own country, was asked by the scientist's worried wife to check on her husband's safety. The agent located the place of torture by careful following of clues, killed a guard outside the building, climbed vines up a wall, slid through a narrowly opened window into a hall, silently killed two men he encountered in the hall, heard moans, went into the room where the scientist was imprisoned and killed the torturer and two other men, all almost without noise, then imitated a voice on the intercom to the people in the rest of the building and warned that the police were coming and commanded them to get into their cars and escape, but to leave one car idling and empty before the door. The agent waited until he heard motors leaving, carried the scientist down to the door, saw an idling empty car, looked around saw no opposition, put the scientist in the front seat beside him and drove away.

Clutching each others hands the watching couple let out a sigh as the car reached safety and the scientist

was carried into a friendly and attentive hospital.

"It does not seem to be for children or for a joke," Tima said. "Those agents and spies are dangerous to scientists from outside countries."

"We are from an outside country."

"Far outside."

"They might substitute an agent for Sir Harrington."

"But we know what he looks like."

Another story began, clipped from another television show. On the screen another scientist, potbellied and older, and more hesitant in his manner, let himself into a pleasant apartment and shut the door with a relaxing sigh. Music came soothingly from the kitchen.

"Maria, I'm home. Good news!" he called. The scientist dropped his coat on a chair and walked into the kitchen. "Naval Research has accepted my—" The kitchen was empty. Still smiling he wandered on to a balcony and looked at the sky. The phone rang. He went in to answer it.

Rem and Tima reached for each other's hands as ominous music began. Still smiling the scientist held the phone to his ear.

A cold voice with an accent said, "Doctor Obarth? We have your daughter. She will not be harmed if you obey our orders."

He gripped the telephone in both hands as if about to throw it, but pressed it more tightly to his ear. "I don't believe you," he whispered. "She has only just gone out to the store. You are lying."

"We will prove we have her," said the cold voice on the phone. "Listen and you will hear her speak to you."

The ageing man breathed heavily into the phone for a moment of hesi-

tation and fear. "I don't believe you," he whispered. No one was listening to him. The scene on the screen divided and the other side showed a dark basement room with the windows covered. Two men held a girl by the arms, and a third man held a phone before her face. She shook her head. The man holding the phone spoke to the other two and they did something to the girl's arms.

The girl screamed.

With a bound Rem Sh'baar turned off the television set. The screams faded and the picture went dark. Trembling he stood pounding his fist softly down on the top of the TV set, looking at Tima. They were both tall and slender, delicate by Earthly standards.

"I won't let them have you," he said, his teeth showing. "All their friendliness and crowding around might be just waiting for an opening. Tima, what have I said about you? Have I said anything that would let them know you are in the spaceship too?"

She thought. "They don't know I exist."

"Good. They will not kidnap you to force me. Or kidnap me to force you. I will tell them I am sick. They will be afraid to beat me."

He stopped and pounded his fist silently on the top of the television box and then continued. "The role is wrong. It is not safe to have them think of me as a scientist. I said this would be a short visit, so I am not bound to them by any promise to stay. We'll leave as soon as we see any move toward kidnapping."

Rem contacted the human officials and asked for chairs in the airlock.

They turned the television back to

the hourly shows to wait for the news, and worked off energy in a bowling target game, occasionally glancing at the television.

The scene was a panel show, but the puzzle contestants had abandoned their game and were discussing the news.

"What secret of science would you ask our visitor from the stars, Miss Saint Clair?" asked the moderator.

The camera shifted to a close up of a rather wattled and skinny ex-movie queen. She toyed with an earring and looked coy. "Well, I do hope the dear man will tell us something about wrinkles. I'm still in my teens of course—" The audience snickered politely. "But I do hope for the sake of all the other girls that he will give us one teensey cure for wrinkles."

The mellow smile and raised hand of the MC interrupted the audience's sympathetic laughter. "Now we'll hear from Ralph Rock, currently starring in that musical hit, *The Bluebells*. What secret would you like the stranger from space to tell you, Ralph?"

A clanging and booming began in the outer airlock of the big spaceship as human TV technicians dragged in chairs, television equipment and cameras, setting them up for the important interview.

"I will wear an airtuit and look like an astronaut again. Maybe they will not think of me so much as a scientist to squeeze for secrets." Rem Sh'baar zipped his coverall on and pulled the bubble helmet over his head. "If they have no bad intentions it is only the language which can make trouble. But I think I can explain the science in their language without breaking taboos and angering them."

The two chairs he had ordered were

in the middle of the airlock. He entered and saw three television cameras along the walls, crowding the small metal room, pointing menacingly toward him like machine guns. Their heavy cables trailed away from them and out the door like fat-bodied snakes, and their thickness held the door open so it could not be slammed shut for a quick takeoff.

Rem Sh'baar looked at the door wedged open, wondering if it were part of a plan, then he inspected the chairs, touching them suspiciously. He lowered himself into a chair. The arm rests surprised him by nudging against his elbows. He lowered his arms on to them and gripped them firmly, and sat very still, bringing everything he knew of English into readiness.

His posture was stiff and very still. To the panel of scientists viewing the tape as it was made, watching somewhere in a government building in Washington, he looked like an Egyptian stone statue of an animal-headed god seated on a throne to judge the dead.

There was a sound of a polite knock by one of the television technicians. "Are you ready for Sir Charles, Sir?"

Rem turned his head stiffly toward the half-open door. "You may enter, Sir Harrington. I will be glad to greet you."

"Thank you, Lord Sh'baar. I am glad to greet you also."

A tall lean Englishman with buck teeth and the expression of an amiable horse pushed the door a little wider and stepped in carefully. Every move was taken with the caution of an old man, aware that old bones are brittle. He sat down, crossed his legs, and arranged himself in the relaxed and

reassuring pose of a practiced interviewer, a man capable of interviewing natives in strange jungles or shy artists in their studios.

He glanced at the cameras and slightly changed the angle of his head. "Thank you, Lord Sh'baar, for asking me to interview you. It is an honor."

Rem Sh'baar glanced also at the cameras and spoke slowly, phrasing English with careful clarity. "It is an honor also to meet you. Lord Harrington. We—I have admired you on television. Stories you told of struggle to be understood by native tribes and misunderstandings — such adventures have happened to us also. We—I am a student of races and civilizations also. I enjoy differences and seek them, as you enjoy them and seek them. What will be the questions they gave you?"

The human world was waiting, hoping that their man would be able to extract important and wonderful information from the stranger.

The famous old anthropologist inclined his head. "Lord Sh'baar, if you will permit a preliminary question before the important and difficult ones—are our races on the same evolutionary level?"

The person from a far planet fidgeted, thinking. He unzipped his bubble helmet, which flattened out to a cape-like collar over his shoulders. He rubbed his muzzle in puzzlement and stroked the four short bristles on his cheeks. Finally he asked, "What is Evolutionary Level?"

"Evolutionary Level means," Sir Charles hesitated, and looked at the muzzle and pointed ears of the visitor. "Well perhaps it means nothing. We will forget that one. Tell me, do you

find humans as intelligent and sensitive as your own people?"

"Yes, you have much inner struggle between carnivore and herd instincts, very like my own people. It makes for divided dreams of kill and love—impossible in action."

"If we are like you, then we are intelligent enough to learn all of your science, are we not?"

It was a loaded question, a crucial question. Sir Charles Harrington Smith asked it casually, without emphasis, but Rem Sh'baar recognized it. The child's answer to only three wishes. The first wish shall be for a hundred more wishes. If the Vog will only answer three questions, ask for a way to find out everything.

"Would you repeat the question please?" He hoped that would not be it. His answer might offend them. He wondered if they really dueled when offended.

"Can we humans learn all of your science?" the old anthropologist repeated patiently. "Do we have the intelligence?"

"No. Yes. Yes, intelligence. No, for you must learn our language. Science is thought, thought in language. Our children learn basic science when they learn basic language. Children have great speed in blotting up touch, sound, sight. They need only the help of words to make true connections: Yours is taboo culture, taboos basic words."

The lanky old Englishman shifted position, and crossed his legs again the opposite way carefully. "Thank you, Lord Sh'baar. Could you inform me a little more clearly, perhaps? We need to know if our scientists could learn your science from your science books and records. We would like to

ask permission to photograph your books."

It was the question, again. This time he had said it openly.

The alien licked his lips nervously, feeling very alien. "Your people cannot learn science, not even from your own science books and records. Your civilization is a word-taboo culture. It taboos words, not actions. Children learn to not-say, by learning to not-think. Taboo-type cultures are very difficult to learn, take all learning power to learn not-think. Average person when grown has learned not-think and how to tell bad jokes to think a little. He cannot learn science."

Sir Charles shifted his weight and recrossed his legs, and scratched his upper lip as though looking for a mustache to rub. "You have learned English wonderfully well from listening to my lectures, Lord Sh'baar. It is almost like listening to myself lecture on taboos of tribla cultures." He cleared his throat as though caught in a lie. "Ah, barring a little more grammar of course. The question is not whether our children can learn our own science, but can our scientists, our intelligent people learn your science from reading your books and records?"

Rem had given a good answer, and yet Sir Charles had not understood the answer. He moved to put a hand over his eyes to think. But no human in an interview on television had ever put his hands over his eyes. It could be a tabooed action. Rem dropped his hand before it reached his face, licked his lips and glanced around at the cameras, trying to find words that would reach even the most stupid members of the human audience, and yet not offend.

"Sir, I could teach you to read our books, but you could not read our books. You could not make science mind-models from our words. Suck, eat, digest, sleep, defecate, kill, love, procreate — strong experiences make strong words, make strong thoughts. Our science words are strong words. Science is about reality. Reality is yours from skin experience, from pleasure of instinct. But you taboo skin and instinct words."

"But we could learn your language, could we not?" Sir Charles leaned forward, urging gently as he had so many times on television. Rem had admired his technique and had learned from it. Yet now Sir Charles was wrong, was blind, was dangling a hook before a log instead of a fish. "And then we could read your books. If you would allow us to photograph and read your books . . . ."

"How can they learn our words if they will not allow the ideas the words mean?"

"They could learn like children I suppose," said Sir Charles. "Every child starts by hearing the words without knowing the ideas. Every child learns the ideas somehow. If you could loan us an encyclopedia of your science with pictures, and some of the books you use to teach your children, and let us photograph them, I'm sure our bright young scientists could work out their meaning somehow."

"It is too late for adults, they have passed their learning time." Rem's voice was shrill. He flung an arm out sideways in a desperate gesture.

"Well perhaps some of our scientists' children in their own homes, could see photograph copies of your books. If you merely let us photograph them . . . ." Again no under-

standing. Again the impossible request.

"Your children have strain and trouble learning your culture. Infants learn to digest, no words for triumph, no praise or notice of it. Learn to reject bad food, don't do that, bad child. Learn to defecate and withhold. Good child, but never mention it, the words are taboo, unspeakable words. Everything important and alive in the life of the child is unspeakable. They love and see love. Shh, do not mention it. They learn to talk, do not shout, do not make funny noises, do not say taboo words, do not mention anything important. Shh. So they learn to not-talk by not-thinking. Very difficult to not-think. Adult has learned taboo pattern well, must learn to speak past taboo pattern by jokes and hints, to act past taboo pattern or die. Cannot learn more. No room left in head for learning more. Only children can learn."

Sir Charles looked patient. He gestured a hand out sideways, a carefully neutral gesture of tossing something away which carried no menace in any animal or human gesture code. "If your books were around, our next generation of children could learn from them. I'm sure your books would be valuable."

Rem moved again to put his hands over his eyes to think, and then remembered that this was not done on television. He dropped his hands and looked around at the three staring television cameras, but they gave no clue as to how to phrase the answer to get through a taboo-blocked mind. "I would not want to interfere with a child learning his own parents' don'ts. No parent would want that." His voice rose. "A child who learns and speaks tabooed ideas is a tabooed

child. An outcast. I use only your words, your words from your lectures. Children in a native culture meeting older wiser people from western European civilization learn new strong ideas from outside. They learn that the wise outsiders laugh at their taboos. They speak before their elders and are punished, and find that the ideas they have learned are called insane, evil, unclean, dirty, unspeakable, taboo, by their elders. The children think their elders are enemies of knowledge and of growth. The children think the secret of all success to bring pain to elders, to break taboos and rules and bring crime and destruction and defiance against elders. They destroy their civilization, their race dies. Many tribes have died of culture shock. You have said it yourself." His voice reached a high pitch of nervous emphasis and he finished in a squeal.

"Those were primitive tribes," Sir Charles said reasonably. "This is a civilization. Surely the introduction of some new science ideas cannot be a moral crisis. Science is innately impersonal."

"Science is innately impersonal? Science is innately impersonal?" The long slender non-human sagged in his posture. He looked at the floor and muttered to himself in his own tongue. "I cannot let you pour a pail of our civilization's by-product ideas over your children." Yet he had promised to answer their questions. He looked around the empty airlock room, the TV cameras trained on him like guns, the trailing cables that led out the partially closed door into a strange world. "My English is not clear perhaps. Information cannot be neutral in my language. I cannot dare to be

more clear." He looked hopelessly up at the weatherbeaten face of the English anthropologist and saw that the man was sympathetic to his struggle to express himself. "Sir, when you entered a native village, did the natives ever try to kill you?"

The famous anthropologist hesitated and, surprisingly, blushed with a pinkening change of color through his neck and face. "Well, in a way, yes. Several times. I must have made some mistake of course. Naturally a stranger walking into a village without knowing the taboos would have to be very careful. I was always careful, but sometimes one may break a taboo with a very innocent action." He sounded apologetic.

The alien sat in his chair stiffly, like a statue. "I have had much time to study your taboos. I have watched much television. I am being very careful."

The old English anthropologist fixed him with a searching gaze. "I believe you mean that today you are the anthropologist and I am the native." He laughed in a suppressed snort. "That is a turnabout! Did you say you learned our taboos from watching television?"

"Yes. I have studied television from all the television programs taken on tapes. Six months on tapes from many many stations," the alien said, not smiling or relaxing. "I am careful. I make moves and say only what was said by the good person of the story, the one who won friendship."

Sir Charles laughed openly. "Oh television taboos. Yes, they are strict. Not much is allowed on television, since international broadcasting really took hold. There are so many little corners of the world with a religion



that would be offended by one thing or another that it is hard to remember how to behave in front of a camera. But we needn't worry too much about that. If we slip and say something to shock somebody it will be edited out of the tape before they release it. The public will never see it."

"I do not understand." The visitor looked from side to side at the cameras and tightened his grip on the chair.

"The world is not watching, Lord Rem-Sh'baar. You can talk freely. All this is just going down on tape. The only persons watching are a panel of scientists and a panel of ministers from each country. They will play the whole interview over and over and cut out anything which might offend any part of the world audience." Sir Charles smiled, obviously enjoying reassuring the nervous visitor. "You can speak freely. No one will be offended. I am an anthropologist, and nothing can shock me."

The non-human stood up. He changed, became young, mobile and excitable. "They are not watching! Let me embrace you, Sir. Oh I watched your television lectures and felt much." He tugged at Sir Charles' arm. "Please stand up, Sir. We will begin again as if we had just met!" Rem Sh'baar put his hand over his own chest. "I was hurt in the middle parts because I could not greet you."

Confused but smiling, Sir Charles hoisted himself from the chair and stood up on stiff old legs.

Rem Sh'baar wrapped arms around him and hugged. "We love and are alike, yet are not brothers. May my children marry your children and repopulate worlds with our kind." he paused and chuckled in Sir Charles'

ear. "The actions are impossible of course, but the heart may wish."

Sir Charles turned his head to the warm pressure of the head on his shoulder, the friendly voice that spoke in his ear. Love is a rare and fading light to the old. He kissed the near cheek of his admirer as he would have kissed a grandson, and the quick sentimental tears of the aged filled his eyes. Then he looked past and saw the eye of a TV camera trained upon them like an accusing stare.

Sir Charles stiffened and tried to draw away.

"We could be misunderstood," he said in a low voice. "I appreciate your sentiments, my boy, but we are watched by that group, that small group who will judge the tapes. I do not know them personally. We must be more formal."

Rem Sh'baar released his shoulders with an additional last reassuring squeeze and drew back.

"The ritual then. We shall be formal. I ally with you, Charles of the sires Harrington and England, the highest fruit and flower of the tree, Earth. I will respect your sires and protect your seed." He unzipped his coveralls from the neck to below the waist. "My chest is bare to your blow. I turn my neck to your teeth and know I shall live forever." He turned his neck and waited two seconds, then abruptly leaned forward and kissed Sir Charles' neck, and reached down and touched him below the waist.

"May your breed multiply and be fruitful in your image. May our children breed together in love and our images blend into something higher." His voice was gentle.

Since the moment he had been embraced again Sir Charles stood with

his eyes shut, deeply moved, listening to the ritual words as he would have listened to great music. Tears trickled from beneath his closed lids.

Rem finished the ritual and looked at Sir Charles with concern. "Why do you sorrow, father?"

"Memories. That is memories of my children, my grandchildren, my friends. It is not sorrow exactly. Time can't turn backwards." He wiped his eyes with the back of a finger. "You are a good boy."

"I could share your memories."

Sir Charles opened reddened eyes and looked into the delicate half-animal face, and then looked down, and saw that the alien's coverall was unzipped to below the waist and some anatomy showed which was not human, but which was aggressive rather than receptive, and therefore decidedly male.

Sir Charles took two steps backward and looked away. The red which had been around his eyes spread and suffused his cheeks and ears.

"Zip up your clothing," he said in a stifled embarrassed voice. "People will misunderstand. They will think your ritual is suggestive." He dropped into a chair and crossed his legs tightly. "They will think your ritual is meant to mean . . ."

Rem interrupted, sparing him the struggle with the unspeakable and tabooed words. "I would not have you misunderstand or be insulted in your beautiful self, Father. The ritual is meant from the heart also. You are beautiful. I would fertilize you if I could."

Excitedly he spun, fingers spread as if gripping all of life. "But souls may breed with souls, Sir. Send for copies of your books, Sir Harrington, that

I May take them with me."

Sir Charles leaned his face into his hand so that he could not see. "Zip up your coveralls," he groaned. "Couldn't we change the subject somehow?"

"No," Rem said determinedly. He unzipped his coverall and stepped out of it. "We must work. We must not be formal and strangers to each other. If we wear nothing it is a gesture of truth. And it will not be put on television until we return to our concealments, until then we may plan freely together, and think together to help the Earth People who need to know what I know. I need your advice, Sir."

"Put on your coverall," groaned Sir Charles, not looking. "Don't leave it on the floor!"

Rem absently picked the coverall off the floor and draped it around his neck. "Yes, we must work." He paced up and down, becoming brisk and efficient. "Let us work together on the problem of the information-intercourse of our races. Our way of life must breed with your way of life. But what can be done if the female race will not admire the gestures of the male race? The semen of information must not spill upon the ground! We must find a courtship pattern acceptable to the species. What feathers can we dress this bird in? What courtship dance can we teach him?"

Enthusiastically illustrating his words Rem danced a few bird steps, making one arm into a long bird neck with the hand a pecking head, and the other arm a flapping wing. "How may the information be made to penetrate, by sugar or by oil? We must plan well, we must thrust strongly when the time comes." He illustrated.

His blush paling to a patchy purple

complexion, Sir Charles gave one more desperate apologetic glance into the eye lenses of the television cameras and pushed himself to his feet. "Pardon me, Lord Sh'baar. Excuse me, I must go and think this over." Without awaiting a reply he tottered out the door.

Worried, Rem put on his coverall, then went to the door and looked out to make sure the Earth scientist was all right. He saw that the old man was being helped down the ramp by a television technician and the famous announcer. Reassured he returned to the empty room and looked around at the staring cameras, wondering what the committee of wise men would decide to do with the record of the first half of the interview. Some of them might like him, and wish to be his friend—Rem thought hopefully.

It seemed likely that his first Earth friend, the famous anthropologist, would have to rest or take medicine before returning. Rem ran to the interior door, waited while it spun him slowly through the air purification chamber, and then leaped out into the living quarters.

"Tima," he called.

"In here." He followed the voice into the shower stall. His favorite wife was nervously combing her wet hair, watching the outside of the spaceship and its action on the tiny bathroom viewer. "No hostile action yet, Rem."

"Tima, he became sick for a moment and had to go out."

"I was watching," she said. She came, dripping and shiny, out of the shower room and danced and hopped to dry off.

"Is there anything they would expect me to do? What customs do Earth people do when someone is

sick?"

"I don't know," she said, rubbing the water off her arms. "I'm worried. By their way of counting the years he is worn out. He might be very sick. He moves slowly and tries to look happy."

"Yes, he might have been sick already when I asked Earth Government to send for him," Rem agreed in a low voice. "It would be a great way to go, dying in a moment of history. He would not refuse."

Rem paced a few steps and then spun to her in doubt. "I would like him to lie down during the rest of the interview. He is from a different evolutionary line. Would combing his hair make him feel more secure and protected, or would it frighten him?"

"I would like to stroke him, too," she said thoughtfully. "Gestures do have different meanings on different evolutionary lines. But, oh Rem, all furry animals with four feet need their friends and family to clean the fur behind their ears. It is a symbol of love. His ancestors had fur. I'm sure they did. I have seen their animals on TV exchange care for each other by stroking each other's neck and ears with their tongues. It must be a gesture of love on this planet too. The poor old thing will be happy if your stroke him."

"I would like to teach him to be young," Rem said excitedly. "But it might take weeks. Tima, do we have time to stay long enough to explain psycho-chemistry to him?"

"If you like him that much, it is worth the risk." She touched his cheek with light smooth fingertips. "Do what you wish for your friends,

Rem, and I will help. Communion is more than life."

They watched the panel which showed a small picture of the view from four directions around the ship. There was only the ring of armed guards facing away, two TV technicians guarding the cables that ran from the cameras in the ship to a distant parked truck, then the trees and a far away wall of watching crowds and parked cars, and cameras on the back of large trucks. They did not see the tweed-clad, lanky figure of Sir Harrington.

She walked back into the main study and games room. Tima swung by her hands on the bars, did two loops and landed, teetering but upright, on another bar. She had done better before, and Rem could do better, but he made encouraging sounds of applause.

The television set was flickering, showing a foggy view of a crowd milling. It had been hand-built to match the signals from Earth, and needed adjustment often. Rem tuned it, turning the sound louder and clarifying the picture.

On the screen Sir Charles Harrington-Smith sat in an outdoor camp chair, a whitecoated doctor holding his wrist and counting the pulse by staring at a watch. Reporters crowded around the famous anthropologist and thrust microphones towards his face. Sir Charles turned his head fretfully from microphone to microphone, trying to answer a barrage of mumbled questions. "No, I was not hurt. He was a nice young man, but not serious. No, no great secrets, the interview was a joke. Perhaps he was drunk. Or too young. No I don't think he is actually planning

to tell us anything important. It might be his idea of a joke."

Rem sank down crosslegged to the floor and put his face in his hands.

The reporters on television asked other questions in an excited gabble.

"No," said Sir Charles, his thinning hair sticking dankly to his forehead. "I can't tell you any scientific things he said. It was only anthropology, the same things he had heard on my lectures on BBC 2. Nothing really new. He avoided a very simple question over and over. I don't think he knows very much science. Does an adolescent know very much about the construction of the plane he rides in? He is young, and not serious. He doesn't have the scientific attitude. Most of the things he said were either off color or funny. He treated it like a party. He isn't serious."

In answer to another question. "No I will not go back and try again. I enjoyed meeting him, and we were friendly, but it was too much effort trying to get the subject onto science. I am ill. It upset me too much."

With his head in his hands, Rem groaned, "I was sure he liked me."

"He did," Tima said, "But you shocked him, somehow. You told him it would shock him." She shut her eyes, sitting and rocking on a crossbar. "Shh. I'm thinking." She opened her eyes. "Once, secret agent had to rescue a scientist who they had kidnapped. They made him sick and then taken him to a private hospital and told everyone he was too sick to talk, and they were trying to cure him. People who are too young, or too silly or too sick can be locked up. They aren't allowed to drive cars or fly air ships. If the agents are trying to

get you without starting a war with our people, they would say you are too young, or sick or crazy to fly a spaceship, and they would come to take you away."

Tima turned nervously to the viewer, it showed the outside situation calm and unchanged, but she grew more alarmed, thinking of what she had just said. "Rem, we have to get out of here. We can't take off with those cameras stuck in our airlock. They might be set to explode." She leaped down from the bars and ran for the door.

"No!" Rem stopped her and held her shoulders. "If I were an agent I would plan it as you said. You might be right, but let me clean the airlock. Remember, they might try to kidnap you if they find you are here."

He rushed out and she braced the door open. When she looked up into the viewer, motion had started outside. White trucks and brown trucks were driving across the grass of the park.

On the television the commentator was excitedly reading a bulletin.

"Medical Authorities suspect that he may have contracted a communicable disease from the alien being, a disease which is unknown on Earth. Sir Charles is being rushed to a hospital under strict quarantine. A quarantine has been declared around the strange spaceship and military authorities are clearing off all personnel and authorized visitors to a distance of a quarter mile. All persons who contacted Sir Charles as he left the spaceship are requested to report by phone to this number, 799-2354, or report in person to the army ambulances stationed near the spaceship. Repeat. All reporters and other persons who touch-

ed or were physically close to Sir Charles Harrington Smith immediately after he left the spaceship should call 799-2354 or report in person to one of the army ambulances stationed near the spaceship. Do not touch anyone, and bring with you any equipment you have handled, to be disinfected."

"Another bulletin." The announcer read the new one which was passed to him. "Dr. Frederick Wolfgang, psychiatrist and member of the panel of scientists who are viewing the tapes for the interview states that it is possible that the Ambassador from Space was delirious or intoxicated during the interview, and therefore not responsible for what he had said. The doctor stated that the alien was responding like a child rather than a sane controlled adult, and possibly had contracted a disease and a high fever from some ordinary Earth germ such as the common cold. The doctor states that the man from another planet did not take reasonable precautions against germs by keeping his spacesuit on at all times."

Tima had turned the television set loud so that it could be heard in the airlock. She put her head in to where Rem was trying to unfasten the locked resistant wheels of the TV cameras. "Do you hear that, Rem? Hurry! They are going to do it. They are going to kidnap you to a hospital."

"Lock the door between us," he said between his teeth. He found the right catch, and the wheels under the heavy TV camera began to roll.

On the television broadcast which went to all of Earth, the announcer turned to the view of the black and silver globe on the screen behind him. "I am informed that there seems to be

some unusual activity at the door of the spacecraft . . ."

The telephoto lens zoomed in to a close range view of the spaceship ramp and door. The tall slender figure of the alien appeared, wearing the silver spacesuit, backing through the door dragging a television camera after him. He paused, kicked trailing cables out of the way of the wheels, and then rolled the camera down the ramp, leaning backward to keep the mass from slipping away and hurtling downward. At ground level he brought it to a stop, cast a rapid glance around at the distant uniformed lines of men and brown trucks that circled the ship, looked suspiciously under the ramp and then dashed back up and inside. The second camera was rolled out and down to the grass with the same impression of hurry.

"He seems to be removing the television cameras from the ship," commented the announcer. "His spacesuit is not air tight, notice that he does not have the transparent helmet on. Doctor Wolfgang of the committee of scientists inspecting the tapes of the interview said that it was possible that the man from another planet might have contracted a cold by leaving his spacesuit open. Our cold germs could be very devastating to anyone who is not used to them." As he spoke the third television camera was pulled through the doorway and rolled down the ramp.

The announcer glanced at a note in his hand. "All the television cameras are removed from the ship, now." The picture of the slender dogfaced being reappeared in the doorway yanking after him two ordinary folding chairs in a partially folded state. They tangled together and stuck in the door,

but he yanked them free with a violently angry pull, flung them over the side of the ramp and dashed back inside. The small door shut.

A pause, and then the long ramp lifted slowly and closed inot the side of the spaceship, leaving the ship a seamless, shining curved surface. Dust and bits of grass began to fly and fog the air.

Rem returned inside the study room, panting, where Tima sat watching the TV screen. She stood, and said rapidly. "I've already set the automatic pilot for a four weight lift off. Let's go."

They each slid aside a single panel on the floor, revealing two wells of isogravitic liquid covered by a soft folded blanket of waterproof foam. Carefully Tima and Rem lay down beside their own gravity well, containing the liquid which had been matched to their weight to almost nullify any feeling of gravity. Each rolled on to the soft folded blanket of waterproof foam plastic, and sank slowly, to a half-submerged floating position.

"Ready?"

"Ready."

They each twisted a small safetylock dial on the surface of the blanket which delayed takeoff until all passengers were ready. The automatic takeoff mechanism, released, took over the ship, a hum began and became loud, and acceleration pressed them deeper into the liquid bed. The folds of the soft floating blanket on the surface folded around them and pressed against them with the weight of the liquid as they sank.

The TV set on the spaceship wall crackled and sputtered with static.

After a few minutes the accelera-

tion pressure diminished. The two passengers floated back up to the surface and put their heads up. The television set spoke gravely in the English language of Earth.

"Radio requests to the alien that he stop and explain his destination are not being answered. Airforce Authorities say that they have received no orders to intercept or attempt to stop the spacecraft."

They rolled out of the soft acceleration beds to the floor and lay there gasping. Rem began to do pushups.

On the television screen they saw their ship as a wavering shiny dot—a tiny beachball floating in the cloudy sky of Earth. A cloud passed across the dot and it sank into the sky and was gone. The sound and picture rippled. The wavering voice said. "Radar reports indicate that the ship will be out of the Earth's atmosphere in approximately two more minutes. As of present information it seems that the space visitor is leaving without answering any scientific questions or giving any of the important secrets he promised to Earth. Unofficial sources say that the UN authorities are taking a most serious view of the entire

episode, and a protest is being considered."

Lying on the soft floor of the spaceship the two began to laugh hysterically.

"We should have studied them more," Tina gasped. She did a somersault to the TV set and changed the station.

A pair of tight blue jeans and two low-hung antiquated six-shooters filled the screen. "No stranger can come into our town and talk like that—all," bellowed the voice of a TV cowboy. "Draw, stranger!"

"Draw," muttered Rem, laughing half in tears, and added a randy remark which would be censored on any TV screen.

"Draw," Tina giggled, nudging him where it hurt. Laughing they stripped and fell into each other's arms for consolation.

The gunshots and shouts from the television set faded slowly to a musical hum as the giant ship sped outward, away from the odd signals from Earth.

The End

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## Don't Miss

' HUGO WINNER FRITZ LEIBER'S NEW STORY  
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RESERVATION DEFERRED, JOHN WYNDHAM

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# REMOTE CONTROL

## WALTER KATELEY

Illustrated by WESGO

A MASSIVE steel basket, much resembling a greatly enlarged freight container of a gondola railway car, pulled up beside the dock. It halted directly before where my friend, Mr. Kingston, and I were standing. Instinctively I looked for a tow line, supposing that the load was carried by a barge, which on account of its great burden was submerged. I could see no tow line, and no tug was in sight. My companion saw my bewilderment.

"You will be interested in our new method of transportation," he said, leading the way to the edge of the wharf.

I peered over into the water. What was my surprise when, instead of a submerged barge, I saw a great blue whale.

"Is he real?" I asked with a gasp of astonishment.

"Real? Of course he is real," said my friend, with a quiet laugh. "What is the good of knowing the great secrets of Nature if we can't make use of them?"

"These whales and the sharks," he went on, "are carrying the better

part of our heavy stuff; the cement and the building stone, for instance. Without them we would be in a frightful mess of congestion. We should have the whole channel full of freight boats, tugs and barges. There wouldn't be room for the craft to get around. These servants of ours need only room enough to slide through. They handle more material in one day than a whole harbor full of boats could handle in a week. Besides, it costs money to buy or build boats and barges. And this old sulphur-bottom is nearly ninety feet long; and we have sharks that are about fifty feet.

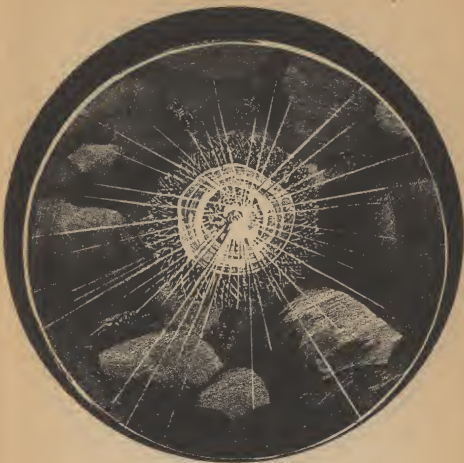
"The unloaders are coming now. I shall have the pleasure of showing you some real efficiency."

At that moment there issued from one of the avenues between the great piles of materials the most motley gang of dock wallopers that it had ever been my privilege to see.

First came some half dozen lively little apes, closely followed by as many huge and fearsome visaged African gorillas. These gorillas were flanked by two powerful lumbering elephants.

Without a moment's hesitation the





*What is the secret that enables ants to create their complex structures—when they apparently do not possess the brains or nervous systems for the job? They must have a form of communication that, if discovered, might revolutionize the world . . .*

monkeys swarmed agilely over the newly arrived cargo, and with movements of incredible swiftness untied and rolled up the tarpaulins that covered the freight. It proved to be a cargo of sacks of cement.

By now the more powerful but less agile gorillas were on the load. They picked up the huge bundles of tarred canvas and tossed them easily to the dock. Then they laid down net slings, and began filling them with bags of cement; picking up and tossing the hundred pound sacks as easily as a man would so many bricks.

"One of them is as strong as ten or a dozen men," remarked Kingston as the first sling was filled. "Now watch the big boys do their stuff. Give them your careful attention."

The two elephants stepped to the edge of the dock, and extending their trunks, passed them through the loops at the ends of the slings, which were held in readiness by a couple of the little monkeys.

They swung it aloft, dumped the sacks on the platform with a heavy thud, and returned the empty sling with a swiftness and precision that was astonishing.

Almost before I had time to realize what was going on, the first load of perhaps a hundred tons was unloaded, and another load was pulled in; the great whale sliding swiftly away and giving place to another nearly as large.

I stood looking at the whole performance, overcome with amazement.

"I can't believe it," I said at length. "There just ain't no such thing!"

"Go to the ant, thou sluggard. Consider his ways and be wise," quoted Kingston.

At that moment something under water a little way out from the docks caught my eye. Soon I was able to make out a long procession of whales and giant sharks. Although they were quite submerged, I was able to see that each was carrying a large container on his back loaded with stone. Stone had but a single block, while other loads were made up of smaller pieces.

"We are using these rocks for masonry coffer dams," said Kingston. "You see, we are sinking several shafts, in order to build the tunnel in sections. In this way we are able to employ more of the large excavating machines; and it is much easier to dispose of the debris out in the Channel than it would be if it were all brought up at the two coastlines.

"You see, we are very fortunately located here for the securing of building materials. The Cornish coast, just up the Channel, affords an inexhaustible supply of the best granite rock; and the cement works, just over yonder at Portland, furnish the best grade of cement right at tidewater. The stone can be transported under water with a minimum of effort; for its weight when submerged is considerably reduced.

"Then again, these carriers can place a rock in a submerged position, exactly where it is wanted, without the work of an additional handling. The method is proving both swift and economical."

I had thought that I knew Kingston and his work; but all this had me floundering beyond my depth. Midway between incredulity and amazed curiosity, I managed to ask:

"But—but where are the bosses for

the monkeys and the supervisors for the whales?"

"Oh, we have established offices in London," he explained. "This is all carried on through a system of television, and of remote control.

"You see, there were no buildings in Dover or anywhere along the English Channel large enough to house our office force and necessary equipment.

"You must know that this England-to-France tube is by far the largest engineering feat ever undertaken. It requires very many clerical and other workers.

"The only people we have here are the material checkers. They take care of receiving and reshipping such stuff as you see here on the wharf. Come, I will show you one of their booths."

So saying, he led me to a little glassed-in office. Here we found two men seated at desks, but apparently idle, but in reality their attention was fixed on a number of typing and computating machines on the opposite side of the room.

The machines were being operated at lightning speed, not by lady typists, as one might expect, but by bushy-tailed gray squirrels!

"Did you ever see a squirrel operating a revolving wheel in a cage?" asked Kingston. "Well, that's where I got my idea that they would make good stenographers. I believe they can move at least twenty times more quickly than a human being."

I could readily believe that such was the case, for one of the little creatures was mounted on the keyboard of a comptometer, operating the keys with all four feet. He was working with a frenzy of almost imperceptibly quick

movements, so that one could scarcely believe there was any intelligent system to his performance.

Another was operating a quivering typewriter with equal swiftness.

"Do you mean to tell me that these squirrels know what keys they are stepping on?" I asked.

"Well, no; they don't exactly know what they are doing, any more than your hands know what they are doing when they comb your hair. Their little minds—such as they are—are crowded aside by the will of the director.

"This state of efficiency, however, is arrived at only after a great deal of practice. The director must educate the muscles of his squirrel, just as a human operator must educate the muscles of his hands.

"I don't suppose they will ever know that they are doing their part in building a thousand-foot tunnel, nearly twenty miles long. And they may see you, but they will probably never know that you are the discoverer of the great principle that has rendered all this possible." And he slapped me affectionately on the back.

"What I have done is nothing compared with what you are accomplishing," I replied.

"And even that little was only an accident," I continued reminiscently.

And indeed such was the case.

What he had in mind had all happened some four years before.

I had been employed for a number of years—in fact I still am—in the Patent Office in Washington.

I had known Kingston more or less intimately for some time. In fact I had accompanied him only the year before on a most extraordinary expedi-

tion—an expedition that had led to some extremely interesting and important discoveries.

At that time he was an amateur scientist; employed as a designer of excavating machinery in a large manufacturing plant. To say he was an amateur in science is probably doing him something of an injustice; for I fully believe that even then he had a deeper insight into the physical properties of all matter than any other man I have ever been privileged to meet.

He had already perfected some experiments pertaining to atomic densities, that were destined to have almost revolutionary effects in the realm of physics.

His was a personality such as made one instinctively feel that he was in the presence of a great mind; and in addition I had found him to be a most companionable and genial spirit.

I have long been something of an amateur scientist myself; not that I have any great store of scientific knowledge, or have ever accomplished much of a scientific nature; but I have always been keenly interested in the unseen forces that rule the everyday world. In fact, my interest in scientific matters has always far outrun my ability to investigate.

I have a month's vacation every year, and I usually spend the major portion of it rustivating on the old farm in Minnesota where I was born. Here I have quiet and leisure for studying any phenomenon of Nature that for the moment has enlisted my attention. For a few weeks I am a geologist, a zoologist, or perhaps an entomologist, browsing among the secrets of nature.

The old homestead has a small

creek with a good fish pond. The pond and the riffles are teeming in summer with all manner of interesting aquatic life. Here too is a large gravel pit, replete with fossilized remains of prehistoric formations. And the old grove and fields abound with a wealth of insect life.

So with my books of reference, my microscope and a few other pieces of paraphernalia, I usually put in my time enjoyably and not altogether unprofitably.

At the time of which I write, I was especially interested in ants, their anatomy, building habits, social customs and what not. I had even gone so far as to establish a colony of the little creatures in a glassed-in formicary in the library-living room of my town lodgings, where I could have them under daily observation. This year I was looking forward to my month at the old homestead with pleasant anticipation, for I felt sure opportunities for ant study would be abundant.

Shortly before vacation time, however, I received a letter from Kingston saying among other things that he was going to have a long vacation while his company were remodelling and installing new machinery in some of the buildings of the plant. I lost no time in inviting him to join me at the old farm, where we could fish and rest, or together chase our favorite phantoms and I mentioned in my letter that I intended to give considerable time to the ants.

He replied promptly, saying he would take great pleasure in helping me catch my favorite ant and asking permission to bring with him a few articles of laboratory equipment, in order

to carry out some experiments which he had in mind.

A fortnight later we were sitting on the bank of the old fish pond in the bend of the creek, fishing for young pickerel and scanning the water with a pair of short range binoculars in quest of strange forms of aquatic life. Behind us was the old gravel pit, where we had spent a part of the morning examining some ancient sea shells that evidently had been preserved in the sand since pre-glacial times, when this particular area must have been submerged beneath salt water.

"How about your ants?" asked Kingston. "I hope you are not forgetting them in your zeal to entertain me."

"Oh, no," I replied. "I shall not forget them; in fact I brought these glasses all the way from Washington for the express purpose of studying the creatures.

"I plan to go up on the hill back of the sand pit to look for a formicary this afternoon. There used to be several of them there in the edge of the little grove. You know they like to build on high, sandy soil. I plan to arm my forces with a space, the high-power microscope and these binoculars and march upon the formicidae."

"Yes," rejoined my friend very gravely, "Caesar said that conquests were more often won by the spade than by the sword."

"But to me the matter of impedimenta seems of equal importance. You know Napoleon said, 'an army travels on its belly.' Or was it stomach? Well, anyway I believe leading strategists are agreed that no one ought

to risk an engagement with any of the tribes of Hymenoptera without a copious supply of lacteal fluid, rich in casein and lactic acid."

So saying he took the thermos bottle from the basket and drank generously. He was a great buttermilk hound. And now, while he was on the farm where all dairy products were plentiful, he was making the most of his opportunities.

"A valuable suggestion," I agreed. "No doubt the boys will be back from the creamery when we go down to the house for lunch, and we will load the old demijohn with a fresh, cool supply."

And so that afternoon we took our basket, loaded with the glasses, a few smaller instruments, a bottle of cedar oil for the oil-immersion lens, together with Kingston's beloved buttermilk bottle, and hopefully climbed the little hill that flanked the gravel-pit. Here, as I had expected, we found a couple of very populous formicaries, and chose one close to the shade of a small maple tree for our investigations. This nest seemed to be very nearly, if not quite, on the spot where I had known one to be fully twenty years before, when I was a small boy.

I am inclined to believe that the colony had occupied the same quarters for at least two decades, and possibly much longer. The mound was about two feet in diameter and perhaps ten or twelve inches high. It was made up largely of small twigs and straws, pebbles, etc. The ants were quite large, with red thorax and dark, almost black abdomen. The female or working ants varied quite extensively as to size and strength of mandibles.

We identified the tenants of this domain as belonging to the group *Lasius Niger*, variety *Americanus*.

Upon examination we found the workers busy at their multifarious occupations. They were carrying in fragments of insects and other articles of food; bringing out rubbish and carrying their little aphids—ants' cows—to and from the pasture grounds. The nurse ants were bringing their charges, the grubs and larvae, out for an afternoon airing.

In fact all was orderly commotion.

While we watched, a group of workers appeared at the edge of the mound, bringing in a twig several inches long. There were more than a dozen of them at this job, and their performance revealed perfect teamwork.

We were anxious to see something of the substructure of the formicary, so we decided to start an excavation by digging a hole some five feet deep, at a distance of several feet from the mound.

This we lengthened in the direction of the ants' habitation, in order to reveal a vertical section of the works without too greatly disturbing the inhabitants or injuring their home. As we approached the vicinity of the substructure, carefully shaving the soil away in vertical slices, we came upon the quarters of a colony of minute red ants, whom we at once recognized as robbers. The little creatures were no doubt preying on their much larger neighbors and living largely off stolen food.

We soon found that the rooms and galleries of the red ants were connected by tiny tunnels with those of the larger formicary, and that these tunnels were too small for the larger ants to enter

through. Such an arrangement rendered it possible for the little marauders to slip into their victims' quarters and snatch anything small enough to carry away and duck back to safety with it.

At length we came upon the rooms and galleries of the large ants, and found them busy with their household duties.

Some were taking care of the eggs and young. Many were engaged in carefully cleaning themselves and one another: busily brushing and licking every part of their bodies. Some were at work while others carried the loose soil away. Here again we witnessed perfect teamwork and cooperation.

We found that their workings extended even below the bottom of our five-foot excavation. Owing to the fact that it was a very warm afternoon, we soon lost enthusiasm for digging any deeper, and lay down in the shade to discuss what we had seen.

"They are very clever little creatures, aren't they?" remarked my companion.

"I hardly know whether they have intelligence or not," I replied.

"Some naturalists claim that all that they do is accomplished by instinct alone, that every movement is a reaction to some sensory stimulus, and that their behavior is controlled by something more deeply seated than intelligence. This something is inseparable from the fundamental life processes."

I took out *The Field Book of Insects*, by my favorite authority, Frank E. Lutze, Ph.D., and read as follows from his discussion of the anatomy of insects:

*"The central nervous system is a double longitudinal series, connected*

*one with another by cords. There is no brain, strictly speaking, for the ganglia in the thorax seem to be about as important as those in the head. Nerves run from each ganglion to nearby parts of the body."*

"Now if there is no brain," I argued, "how could there be any intelligence?"

"I can't say anything about the brain part," Kingston countered, "but you must admit there are evidences of intelligence. You saw how they all lifted at the same time on that long twig? You see how workmanlike they are in their excavating—each doing his part and doing it correctly. We know that their arrangements of passages and galleries are not haphazard, for each variety has its own characteristic plan of home architecture. The different groups are as easily identified by their building methods as by their physical characteristics.

"It certainly requires intelligence to build such a complicate system of compartments and tunnels, all according to a preconceived plan, especially since they have no blueprints to go by."

"On the contrary," I persisted, "the fact that they always follow a general plan, and that each seems to take little or no notice of what his fellows are doing, only goes to convince me that they are not intelligent.

"In the first place, the worker ant only lives a few months, passing all her life in a single formicary. We have no reason to believe that she ever studies the inside of any other establishment. Then how could she, no matter how intelligent, learn the plan and details of a home? She is able to do her part in building as soon as she is fully developed.

"Then again, in all the public works, in all the engineering projects carried on, no one has ever been able to discover anything remotely resembling supervision. There is no master builder, planning and coordinating the work. Now suppose a group of men were about to erect a building. Would it be possible for each one to do as he individually saw fit, without regard to orders from anybody? There would naturally be too many doing one thing and nobody doing another. There would be too much studding and not enough rafters, or *vice versa*. No one would think of determining where the doors and windows should be, and in fact, with no one to direct and coordinate the work, it is obvious that however intelligent the individual workmen might be, no appreciable progress could be made. All would be confusion, as it was at the Tower of Babel.

"Yet among the ants, all is orderly and efficient."

"Surely you would not say that ants have intelligence superior to that of human beings, or that individual humans could not exercise as much judgment as individual ants could!" I countered.

"Well," said Kingston, "if they have no leader, how do they know who is to go for food, who is to make tunnels, and who is to care for the young, or the hundred and one other things that ants do? You say there are no foremen and no directors, but how do you know that?

"Now look at these workers bringing this twig. Here is a large one struggling along on this side near the front. Let us suppose that she may be the forelady. We might easily

imagine her giving directions as she works.

"Gladys, you are a little too far back. Come forward a couple of paces, and catch hold just behind Mary Jane. Now lift the front end over that stone. Right up high with it!

"And you on the back, let your end down, so it will slide along on the top of the stone.

"Now Sarah and Elizabeth, come here and give me a lift. Remember, when we come to that weed stalk, you girls up there in front want to go to the right side of it, not to the left!

"Now we will let it rest a moment until Evelyn's gang get out of the way with that old log. That gang makes me sick. They dodge around that timber like a bunch of old maid grasshoppers and then when they do get home with one piece, it usually takes them all the rest of the afternoon to manicure their antennae!"

"Highly amusing," I laughed, "but hardly scientific."

"Of course, you know," he went on, "we can't hope to hear all this, for our great flapping ears are not attuned to the wave lengths that serve to carry their little voices. But I strongly suspect that if we had sufficiently strong magnifiers we could hear their communications, although of course we would not be able to understand their language."

He lit his pipe and went on: "Hearing and sight are very peculiar things, things that as yet we know little about.

"We have made some progress in these matters in recent years, progress in the way of X-rays, telescopes, microscopes and radio; in fact, we have gone just far enough to reveal how

great is the field, and how little of it we know. I suspect that we are merely on the borderland of the possibilities still beyond. And then it is just possible that ants and other insects have an additional sense, apart from the five that we possess. It might be somewhat akin to hearing, to sight or to the sense of touch. But since we do not have it, we cannot name it, neither can we have any conception of its nature.

"If all people were blind, and had always been blind, no one could possibly know anything about sight. There would be no name for such an experience, and no one would be able to discover it in the animals.

"Sight is such a marvelous, such a complicated thing, that no stretch of the imagination could have conjured up such a faculty, had it not been known in human experience.

"It may be that throughout their entire bodies insects are sensitive to certain vibrations, vibrations associated with wave lengths we know nothing of.

"We know that light, sound, heat and other natural phenomena have characteristic wave lengths. We know that some of these waves are very long, some very short, and some are of intermediate length. We have been able to segregate a little group of them here and there for purposes of identification, and some of them we can measure very accurately. We know the length of those we sense as color, and those which we utilize in radio, etc. But there are wide gaps between the known groups, presumably filled with waves the uses of which we have yet to discover.

"I might illustrate the thought in



this way. Suppose we draw a line through San Francisco, Chicago, Cleveland and New York. It so happens that they are exactly in a straight line, and suppose that only those parts of the line within the narrow limits of the four cities was known, and the long stretches between were unexplored wilderness. This would be a fair representation of our knowledge of vibrations and wave lengths.

"In all probability there are many longer waves—far longer than the longest we know; perhaps hundreds or thousands of times as long. In fact their limits may be circumscribed only by the inconceivable reaches of space itself. And at the end of the scale beyond the short wave lengths there may be countless gradations of shorter and shorter lengths.

"There is, of course, a limit to the shortness of a space that the human mind can conceive of, but there is perhaps no limit to the shortness of a space that Nature can divide. And the possibilities of different forces at work, employing different wave lengths, are absolutely boundless.

"So I say it is quite conceivable that an insect might have a hundred distinct senses, instead of only two or three, or five, as we have. And I believe I am justified in thinking that the mere fact that we cannot see an ant acting as foreman and directing the work, is no sign that such directing is not being done."

"Yes," I admitted, "that is a possible explanation. But I have a somewhat different theory, although as yet it is only a theory. My conception is that a single ant is not an entire individual. In other words, these units that we see are not the

entire entity, but only parts of a larger animal, other parts of which escape our notice.

Perhaps I can explain by using the following illustration. Suppose in the case of a hundred-legged worm, the common centipede, that we were able to see only the legs and the feet and the body were completely invisible. We would then have two rows of feet and going along, all nearly alike and all keeping in line, all marching at the same speed and at uniform distances apart. If one line should turn, the other would turn also. There would appear to be perfect cooperation and teamwork.

"Because we could see no connection between them, we might suppose that each was a complete animal, and that each was intelligent and highly efficient as a marcher; and we would naturally wonder how the general movements of the whole group were directed. Or, to put it in another light. Suppose there were a race of beings so constituted that they could not see our bodies, but only our hands.

"They would be interested in watching our hands doing all manner of things; writing, using tools, operating machines and so on. They would naturally suppose that our hands were possessed of intelligence, yet upon examination, no brain could be found. Then suppose we had a dozen hands, a hundred, or even as many as an ant hill has ants. All these hands might be at work with seeming intelligence, and no particular hand would appear to be directing the others as to what to do, or how to do it.

"Of course I know you might find objections to this analogy, as applied

to the ants. You may say that each ant has its own organs, such as digestive apparatus, sight and smell. And I might answer: so does every part of an amoeba have its own organs, or rather the functions of organs. Each part digests the food with which it comes in contact. The parts move and react to stimuli, although there is no brain and no nerves or sense organs, as we know them.

"Then again, our own hands have certain sense organs, such as the sense of touch, sensitiveness to heat and cold, etc. I see no reason, therefore, why Nature could not add other senses, such as sight and taste; in fact, all the senses we know and others that we know not. So perhaps these ants that we see are only a great many operating parts of one animal. As we have hands, fish have fins, an octopus has tentacles, and so this thing has ants."

"Yes, yes, go on," said Kingston whimsically. "You are making my world larger every moment. Let me see the rest of your strange beastie."

"Well, I hardly know if I can do that," I admitted. "You know vision has its limitations. There may be nerves, right before your eyes, passing from each ant to some central location; but you cannot see them. Let us consider a nerve. It is a little string of white, fatty substance, extending from the brain as a ganglion to some portion of the body. When a message passes along this substance, we do not know what is really happening. Apparently there is no movement of the nerve substance, and no change in its composition. So we are led to believe that the nerve itself has no intelligence nor mechanical energy, and that it only

acts as a passive medium on which the message travels.

"We do not know what a nerve message really is. To our senses it has no tangible form or substance; but our reason dictates that it is a movement of some kind of energy, perhaps a series of vibrations of some sort, possibly akin to light, heat or electricity. And the human brain, knowing far more than we know, is able to interpret these vibrations in terms of sight, smell, touch, etc. Or, if the vibrations originate in the brain, some organs in the muscles—organs which we have yet to discover—have power to translate them in terms of motion. I think that so far my hypothesis is altogether reasonable, is it not?" I asked.

"Yes, I can agree to all that," my friend rejoined; "go on."

"Well," I continued, "sometimes we send messages—such as telephone messages—on a wire, and sometimes we dispense with the wire. We just give the words a little impulse by the help of some electrical apparatus, and let them find their own conductor. And they go all right. We cannot see them as they travel on; but when they arrive at their destination, perhaps thousands of miles away, they reveal themselves to human consciousness fully as well as when sent by wire.

"In fact we are already commencing to think of writing as a somewhat superannuated and archaic method of communication.

"It is within the province of reason to suppose that while Nature can and does send messages over nerves, as we send them over wire, she can also dispense with that little line of fatty matter as readily as we can dispense

with the copper wire, and send messages as we send them over or through or by some medium that is imperceptible to human senses.

"We often hear of some instance that would tend to justify this belief.

"I remember when I was a small boy I heard my uncle tell how he met with an accident while operating a well-drilling machine. Something sharp struck his right hand with such force that it passed through his leather glove and completely severed his little finger at the second joint.

"Realizing that his hand was badly injured, he immediately started for the doctor's house. (It so happened that the doctor lived close by.)

"He removed the remains of his battered glove as he went, and in so doing let the severed portion of his finger fall to the ground. Paying no attention to this incident he hurried on to the doctor who dressed the wound.

"This happened in the winter, and soon my uncle commenced to experience the feeling that the missing finger was cold. But since there was really no finger there to get cold, he tried to ignore the feeling.

Presently the weather became more severe and the pain increased. At length he decided to find the severed member, and put it in a warm place. This he was able to do after a somewhat prolonged search, and promptly the distress was relieved.

"I might relate a number of similar instances, and maybe you know of some yourself.

"But the point is that our nervous system may not have to use a continuous, tangible nerve to register feeling."

"Let's take a drink," said Kingston. He turned to the basket for his bottle.

"What happened here?" he exclaimed. "The cork is out of the thermos, and the little oil bottle is broken. Everything is in a mess!"

"I hope your buttermilk isn't all wasted," I said. "I suppose I must have hit the basket with the spade when I was digging."

"Oh, I guess there is not much gone," he replied, examining the bottle and taking a drink.

I hastened to take the microscope and binoculars out of the mixture of cedar oil and buttermilk in the bottom of the basket.

I laid the glasses aside, meaning to wipe them dry after attending to the basket. But we fell into further discussion and I forgot them.

Half an hour later, perhaps, I had occasion to use the binoculars to examine some detail of the formicary. As the lenses came into proper focus, I noticed a small blotch of slight cloudiness on one of the glass. I at once thought of the spilt oil and buttermilk, and was on the point of interrupting my observations to wipe the instrument, when something quite unusual caught my eye.

It was a tiny gleam of brilliant color, which lay just beside a medium-sided worker ant. As the ant moved along, the particles of color moved with it.

My first thought was that she was carrying something that reflected the sunlight. Yet this seemed impossible, for the bright spot appeared to be about midway along the thorax. As the worker mounted a little rise, the area lengthened and became a thin thread

of silvery, shimmering blue. Then this thread lengthened and shortened as she moved on. Another ant moved into the clouded area; and immediately I discovered that she also was accompanied by a similar fragment of color.

By this time my curiosity was thoroughly aroused. I focused on other ants, and found them all accompanied by the same phenomenon. And to my ever-increasing surprise, I found that in some cases this line of brilliance was very long. In one instance, where a small worker was mounted on a twig, the strange glimmer was fully two inches long. It was like a ray of some peculiar kind of light.

I now noted that from all the workers within my observation the color line extended in approximately the same direction, that is, toward the center of the formicary, regardless of which way the ant was facing.

As I was puzzling over this, Kingston's voice broke in on my consciousness. He had noticed how intent I was on the spectacle, and had no doubt detected a look of astonishment on my face.

"What is it?" he said. "Are you seeing a ghost?"

"I hardly know what it is," I replied in my bewilderment.

I handed him the glasses. "Look at the ants through the clouded spot in the right lens," I directed.

He held the glasses to his eyes. I watched him with interest.

For a moment the binoculars were stationary. Then I saw that he was moving his line of vision from place to place. Evidently he was transferring his attention from ant to ant, just as I had done.

"What do you make of it, Watson?" I asked.

He did not answer. Very soon he focused the glasses on the opposite side of the ant-hill for a few moments. Then he picked up a twig from the top of the mound and held it before him. He noted that several of the inhabitants clung to the twig. At length he lowered the glasses and turned on me.

"What can it be?" I said, hoping that he might have some explanation.

He stared at me as if unable to comprehend my question.

"Why, my God, man, what do you suppose it is?" he asked as if entirely out of patience with my density. "What were you just talking about?"

And then with an abrupt change of manner, he extended his hand.

"My dear fellow," he said, "I want to congratulate you on having made the greatest discovery in zoology of the twentieth century! It is, beyond question, the nerve system of the ant colony!"

"Buy why," I said incredulously, "has no one ever seen it before?"

My companion was examining the spot on the lens.

"I suppose," he replied, "that no naturalist has ever before had the good fortune to spill just the exactly correct mixture of cedar oil and buttermilk on his lens. We must preserve this dried film with the utmost care."

Again we took up the examination. We found a worker several feet from the mound, and had no trouble in discovering the bright line and tracing it from her all the way to the side of the ant hill.

Then we thrust the point of the

spade into the formicary, and took up a mass of the building material covered and filled with ants.

Holding this above the mound and focusing the glasses on a point below it, we beheld innumerable lines of brilliance extending to the formicary.

It resembled a wonderfully illuminated waterfall. "I have no doubt that the queen ant is the center of this marvelous system," I announced. "We ought to continue our excavations until we find her."

"It might be quite a long job," said my friend. "The sun is getting low, and that bank of clouds will soon obscure it. So maybe we had better wait until morning."

"I am afraid to put it off," I replied with some impatience, "because it may be that, when this film on the glasses dries a little more, it will lose this marvelous quality. And then we might never know the origin of the lines. We might never be able to hit upon just the right combination."

"Yes, you may be right about that," he admitted: "and in that case we had better go on as far as we can tonight."

So I hastily started digging again; shaving the vertical layers of the formicary, stopping every now and then while Kingston examined the direction of the lines.

But very soon the sun's rays commenced to lose their brilliance; the lines became increasingly hard to detect and follow.

So we decided to call it a day and go home. That evening we determined to treat some panes of glass with cedar oil and buttermilk, to see if by any

chance they would give the same effect as the lens. We cleaned a dozen or more photographic dry-plates and covered them with a thin film of cedar oil and buttermilk mixed in varying proportions.

These we set aside to dry. Then we treated the other lens of the binoculars with a mixture that we hoped would be effective.

The next day proved to be rainy; but during the day there occurred several short periods of sunshine between showers. We took advantage of these short periods to test our treated glasses.

We soon found that none of the plates gave any results. Neither did the newly covered lens; but we were gratified to find that the original clouded one still retained its magic quality. It was evident that we had not hit upon the proper proportion of oil and buttermilk. The lens seemed to be too opaque. This was presumably due to too great a proportion of buttermilk.

We hastily prepared a more attenuated mixture, and replaced the old coating. During a later period of sunshine, we found that this new film gave perceptible results, but was far from satisfactory.

After several trials, with varying proportions, we finally arrived at one containing only a trace of buttermilk.

By this time the sun was so low that we had no further opportunity to test our work, and so were obliged to postpone further experiment until the following day.

Fortunately the morning was clear and light. We were at the formicary bright and early. To our great delight

we found that our newly treated lens was a success. In fact it was quite as clear as the old one, and of course afforded a much larger field of vision, so that now we were able to observe a large group of ants at one time when a large number were lifted from the formicary *en masse*, it gave a very beautiful effect. The brilliant lines were so close together that in some cases the eye could not separate them; but they never seemed to cross.

By manipulating several groups in the air at one time, we provided some very striking effects. We were so entranced with the brilliance and beauty of the spectacle that it was only with the greatest reluctance that we at length forced ourselves to go to work.

We now continued our excavation, one watching the direction of the lines from nearby ants, while the other removed the soil and deposits of the formicary.

Upon arriving at a point near the center of the mound, and two or three inches above the surrounding surface soil, we came upon a locality where all lines seemed to converge. But to our surprise there was no queen ant present. In fact there seemed to be only a deposit of ant eggs in an exceptionally large cell. Using the low power lens of the microscope, we discovered that there was indeed a very minute basket-like arrangement, apparently composed of silken fibre such as that from which the ant grubs spin their cocoons.

Switching to the 444 lens, we were able to make out that the little container was filled with an almost transparent liquid.

Although we investigated carefully, we could see nothing further, and upon

segregating the tiny basket-like object and moving it about, we discovered that the convergence of the bright lines moved with it, following it from place to place.

Apparently there was nothing to do but try the oil immersion lens. Yet we hesitated, because we feared that the oil to be used might prove fatal to the animal matter, in case there really was a living creature present.

After some discussion, we decided to carry on. I brought a large flat stone, on which we carefully mounted our microscope and an auxiliary light condenser. Then with the tiny basket mounted on a crystal slide, we commenced our examination. I knew that Kingston was a very accomplished microscopist, and I permitted him to take charge of the work.

For some time his efforts were unsuccessful. But at length he announced, "I believe I have it."

A moment later he affirmed emphatically. "Yes, here it is, sure enough. And it's alive," he added presently. Needless to say I was all agog, and impatient to have a look.

Immediately there appeared before my vision a very minute but quite distinct object. It resembled an imperfectly formed brain. It was palpitating slightly, and as I gazed spellbound, it moved perceptibly with an amoeba-like motion.

Apparently it was suspended somewhat below the surface of the crystal-clear liquid in which it was immersed.

"Undoubtedly that is the brain and nerve center of the whole colony," declared Kingston. "I have no doubt that it is hatched from a special kind of egg, and that it draws its nourishment

from this bath in which it is immersed, after the manner of an amoeba."

"Probably the ants deposit predigested food substances in the bath. There regurgitated foods may be prepared and concentrated in the digestive tracts of especially adapted workers. Or it may be that the queen herself performs this as a royal duty."

"I doubt very much if it comes from an egg," went on Kingston. "I think it is more likely in the nature of an amoeba. That is to say, its method of reproduction is by division, and like an amoeba, its life is eternal except in the case of destruction from outward sources. Perhaps after a subdivision of the organism the superfluous brain is carried away by a young queen, about to institute another colony; in the same manner as a young queen often flies away with a number of small wingless workers, or a fragment of fungus culture with which to start a new establishment."

"Be that as it may," I replied, "I think we can safely say that this is the animal itself, possessed of brain power and intelligence; and that what we call ants are only its multitudinous appendages; the queen being in reality only its reproductive organ."

"The various parts of its anatomy are not connected one with another by organic tissues. But they are connected and coordinated into one complete entity by this marvelous and beautiful system of nerves; this network of lines of force."

"This is indeed a great discovery," said Kingston impressively. "And I foresee that it is sure to have far-reaching results."

After a moment he went on. "If we could only discover what this nerve energy is, and determine the wave length of its vibrations, we could apply the force to all animals. We could revolutionize all industry!"

I will not dwell on the account of our further investigations. Suffice it to say that we returned to our respective employments after vacation; and I spent my spare time in preparing a report to submit to the entomological society. I prepared it with much care and elaboration, for I was convinced that it would create a furor when it came to the notice of the scientific world.

Meanwhile, as his letters revealed, my colleague, was busy in his little home laboratory, trying to analyze this peculiar nerve force that could travel through space.

One day I received a letter full of jubilation.

"I find," he wrote, "that it is not far different from light; its wave length is not a great deal shorter than those at the violet end of the spectrum."

He went on to say that he was trying to produce an apparatus that would generate this force. He also suggested that we give a name to this new found entity, in order to distinguish it from light, electricity, etc., and aptly suggested the name "Formicidary Rays."

A still later letter advised me that he had succeeded in producing a generator that was something like a cross between a dry battery and an X-ray machine, and that he was now able to produce visible lines of formicidary rays at will.

I asked for a few days' leave of absence and took a hurried trip to his

home, where I found him hard at work in his laboratory.

"I have asked the company for three months off," he explained, "and they have retaliated by electing me to the position of third vice-president. As yet, the third vice-president has no duties prescribed, so I am at leisure and entirely at your service."

He showed me his new apparatus, and proceeded to demonstrate it.

"For this work, I have been able to expose one of my nerves," he explained as he unwrapped a finger that I had noticed was bandaged. He displayed an incision in the flesh that revealed a small silvery white line, easily discernible with the pocket lens.

He immersed his finger in a transparent bath contained in his apparatus.

"I know this is a very crude method of connecting up," he observed, "but I have no doubt I shall be able to get away from it when I have had time to perfect the details."

"Here you see, is my subject," whereupon he picked up a small glass box containing an ant; at the same time he operated a number of controls of his mechanism.

"Now, take the glass and watch for the nerve line," he directed.

I did so and immediately saw that the line was established, extending from the ant toward the operator.

"You see, I am using my own brain for sending," he explained. "You will perceive that my subject is eating a bit of honey. Such reflex actions can be carried on without intelligent direction. But now watch what she does. I am going to direct her to go and get that straw."

A small fragment of straw was lying some distance behind the ant. At once

the ant ceased eating, and abruptly turning round, picked up the straw and made off with it.

"That will do, Sarah," said Kingston with a chuckle.

The ant dropped the straw and went back to the noey.

"What do you think of that?" asked my host.

"I think you are a wizard," I replied hastily.

"No, I am not," he said; "I am only an amateur scientist. Next time you come I will have a guinea pig perform for you."

"I'm willing to believe anything now," I said. "I am fully prepared to see anything happen. But tell me; why do you think you can apply this to animals also?"

"I have reason to believe," he answered, "that a like force actuates the nervous system of all animals. The only difference between the ants and the others is that the ants have a specialized sending apparatus—broadcasting mechanism if you will—that causes the message to travel on nerves where there are nerve fibres, and in space where the nerves are lacking; whereas the others are possessed of an apparatus that sends over nerve fibres only.

"Now if we can find a way to convey messages to the nerve centers and ganglia of an animal in such a way that they will come in stronger than those from the animal's own brain, we can control the actions of the animal's body.

"Suppose a dog is standing with one foot raised off the ground. There will be messages coming from the motive part of the brain to the ganglion and nerve center through which the nerves pass governing that foot, saying in



substance, 'Keep that foot up.'

"But if we can send a stronger, more impressive message saying 'Put that foot down,' the foot will go down, and Mr. Dog can like it or not."

"I wish you would go a little easy on that buttermilk," I said with mock gravity. "I am really afraid it is affecting your mind."

In spite of my little joke I was conscious—perhaps more strikingly than ever before—of being in the presence of a superior mind.

I was convinced that a great realm, which to me was dark and full of the deep secrets of life, was to him an open book.

And now some years had passed. Mr. Kingston's company, of which he was still a vice-president, had undertaken to construct the long-projected tube from England to France. And my old-time friend was in charge of operations, under the title of chief engineer, which brings us back to the afternoon when my story opened.

This extraordinary scientist mused a few moments over my declaration that my part in the early discovery had been a mere accident.

"Yes," he said, "there was an element of chance involved, to be sure:

but almost all discoveries have been to some extent due to chance; look at the way the Chinese discovered roast pig. This is cleverly told by Charles Lamb in his 'Essays of Elia.'

"But usually the accident doesn't mean anything unless one has a theory first. You had a theory; and the accident only served to verify it."

"The important part of the accident was that you happened to be there to see it," I rejoined. "Had it not been so, the most that could have come of it would have been a rather carefully worded report to the entomological society."

"Well," Kingston said, "the good old tube is more than half done now.

"It is ten times as large as the old engineers dared to propose. And in all the departments of the undertaking except where heavy machinery is indispensable, the work has been done by very efficient animals of more than forty kinds."

"And when the thing is finished, something seems to tell me that we shall see your picture in all the leading newspapers and magazines of the world," I said in answer to his modest statements.

The End

## A. BERTRAM CHANDLER'S NEW NOVEL SPARTAN PLANET

IN THE MARCH FANTASTIC





# "YOU'LL DIE YESTERDAY"

By **ROG PHILLIPS**

Illustrated by **JULIAN S. KRUPA**

*If time travel is possible—then it is possible to travel back in time to murder your grandfather. But if you did that you would never be born and make the trip in the first place . . . Nor is this the only paradox possible when you combine time travel and—murder.*

"THANK you," January Stevens said, his voice drowned out by the applause of the audience in the small lecture hall. He turned to leave the platform.

The hall was filled almost to capacity with an audience of quietly dressed men and women. They had come to hear a world-famous author speak on his most recent book, and the attention they had given his words was complete and sincere during the entire two hours.

"Just a moment, Mr. Stevens," the lady chairman said, standing up. The applause stilled. "Perhaps the audience has a few questions to ask. I myself have one." She paused while Jan turned to face her. "What is your next book about? You *are* writing another, aren't you?"

"No, I'm not," Jan said. "Of course I might write another sometime; but right now I have no plans in that direction."

"What," the chairwoman said, smiling. "You write a best seller and aren't making plans to reap the benefits of your fame?" When Jan only smiled she turned to the audience. Any questions? Ah. There' a hand. Yes?"

"Where did you get the idea for your book 'Me and My Robot,' Mr. Stevens?" the owner of the hand asked, rising.

"Well, that's hard to say," Jan said. He darted a glance at Paula Morris sitting at the side in the front row, then turned his eyes back to the man. He seemed just an innocent spectator with a vacuous face. "Where *do* ideas come from?" He grinned. There was a ripple of laughter in the audience.

"What I mean is," the man per-

sisted, "did it come from any research work being done at present, by you or by someone you know?"

Jan glanced toward Paula again, frowning uneasily. While his eyes were on her a shot shattered the silence of the auditorium. Jan's eyes swung up in time to see the man who had asked him the questions stiffen, then sag down, dropping out of sight behind a row of chairs.

In the stunned hush that followed a chair overturned at the rear of the hall.

"He did it!" a woman's voice shouted, clutching at a man. The man struck at her with a hand containing a gun. Free of the clutching fingers, he ran to the exit and vanished.

Jan was already off the platform running up the aisle. He reached the exit seconds behind the fleeing gunman. The doorman was coming toward him.

"What happened in there?" the doorman asked. "I thought I heard a shot."

"Did a man just run out this door?" Jan asked hurriedly.

"No," the doorman said.

"He must have," Jan said. "Which way did he go?"

"Nobody came out any doors," the man insisted. "I ought to know. I've been out here all the time."

Jan turned back into the auditorium. A crowd had gathered about the spot where lay the man who had been shot. Jan pushed through and saw Paula bending over him in a hastily cleared area.

"How is he, Paula?" he asked, stooping down beside her.

The man on the floor looked up at Jan, then smiled painfully. "I should have waited to hear what

you wanted to tell me," he said, smiling ruefully.

"But you were shot!" Jan said. "How could you—?"

"I didn't mean just now," the man said. "I meant—"

A shudder shook his body. He became still.

"He's dead," Paula whispered, drawing away from the man, her eyes wide.

"Dead?" a scared voice came from the crowd. "Let's get out of here, Emma. I don't want to get mixed up in a murder."

"We've got to find out who he was, Paula," Jan said in a low voice.

He knelt down by the dead man and felt inside his breast pocket, drawing out a leather billfold and some printed sheets.

The doorman was saying, "Everyone has to stay here until the police arrive. I've locked the doors."

Jan and Paula slipped over to a corner by themselves while they inspected their find.

"This's some sort of license," Jan said, coming across a card. He read, "Fred Stone, age—What! A hundred and seven? Expires January seventh 2163. Wonder what that 'T.T. Permit' means? But of course this is some sort of crazy card. Doesn't mean anything. How could it?"

"What are these printed sheets?" Paula said, taking them from Jan's hand and unfolding them. "Look at this!"

Together they read the heading. "Speech of January Stevens before the Society at their meeting of April 8, 1953."

"Why, Jan!" Paula exclaimed. "That's today!" Her eyes scanned the first few paragraphs. "And it's

word for word the speech you just gave."

"I see it is," Jan said. "But it can't be. I didn't prepare my talk. I made it up as I went along, and there's just—" He looked at Paula wide-eyed. "There's nothing except the shorthand notes of the society's secretary. Mrs. Gergory the chairwoman said my speech would be taken down in shorthand and printed in the Society's quarterly bulletin!" He inspected the papers grimly. "I'm going to keep these," he said. "I'll give the police his wallet when they get here."

The door opened in the darkened room. Lights came on, revealing the room as a well-equipped modern scientific laboratory. Jan closed the door and locked it.

"I've got to conduct some tests on these papers Paula," he said, going over to a table holding several varnished cases. "No use waiting until morning. I couldn't sleep anyway, wondering about them."

He swung open the door on the front of one of the cases, bringing out an instrument resembling a box camera.

"This is one of the things I bought with the royalties from my book," he explained. "It's a commercial development of the Geiger Counter for telling the age of organic compounds. It tells their age by measuring their radioactivity."

He took a pair of headphones from the cabinet and placed them over his ears, plugging the cord into the camera-like box.

"Now," he said. "I take this lead plate to block off emanations from the table, then lay the papers on the lead." He did so, then placed the camera-like box lens down on the

papers. "I plug it in now," he said. "Now whenever an atom explodes it makes a click in the earphones. I count the clicks for a minute."

He listened intently while Paula watched. Finally he took off the headphones and placed them over Paula's ears. She listened while he took a booklet from the cabinet and looked at tables.

"Paula," he said, his voice sounding queer. "According to the tables those papers are just two hundred and ten years old."

"Two hundred and ten?" Paula echoed. "But—but that would mean—"

Jan nodded. "It jibes with the expiration date on that card belonging to Fred Stone. It means that he came from the year 2163, two hundred and ten years in the future. That T.T. permit means time travel."

Paul took off the earphones.

"He came back in Time," Jan said, "carrying the printed copy of my speech about my book, to ask me questions about it. He was killed before he could ask those questions."

"Why?" Paula asked.

"I wish I knew," Jan said. "Was it to keep him from getting the answers to questions he was going to ask—or was it to keep me from learning what questions he was going to ask?"

At the door a man had materialized out of thin air. Jan and Paula, their backs to the door, hadn't seen him. He cautiously unlocked the door and swung it open, then stood in the opening as though he had just entered.

"Put your hands up and get away from that bench," he said abruptly.

At the first sound of his voice Jan and Paula turned, startled. They stared

at him and his pointed gun, their eyes widening.

"How did you get in?" Jan demanded. "That door was locked from the inside!"

"Never mind that," the man said. "Step away from that bench so I can get those papers."

Jan looked at the man keenly as he raised his hands and slowly moved away from the bench.

"You're a killer," he said. "I got a good look at you there in the auditorium."

The man grinned at him mirthlessly, then moved warily to the bench, pocketing the papers Jan had been testing.

"What you know won't be believed," he said. "Otherwise I'd be forced to kill both of you. And I'm taking your only proof with me."

He backed toward the exit, jumped through and slammed the door.

Instantly Jan was in motion, running toward the door. He flung it open and looked out. Slowly he came back across the room.

"He was gone," he said. "He must have vanished, because there wasn't time for him to get to the end of the hall."

"Put up your hands," the now familiar voice of the killer sounded from one corner of the room.

Jan and Paula turned in the direction of the voice.

The man advanced toward them cautiously, his gun trained on them.

"Turn around, Stevens," he ordered.

Jan slowly turned, his hands elevated as high as he could get them. The killer's free hand searched Jan's pockets swiftly and expertly.

"What did you do with it?" he demanded, his voice harsh.

"With what?" Jan asked, mystified. "You—"

"Drop that gun, Forbes," a new voice said.

The killer spun around and fired. The man across the room ducked to one side and ran along the wall, trying to get Jan and Paula out of his line of fire. He was wearing a brown uniform with a police badge on his chest.

The killer jumped to the door and flung it open, darting out. The uniformed man ran after him. Jan, lowering his hands, went to the door and looked out. He turned back into the laboratory.

"Gone," he said. "I wonder what he wanted this time? The police got everything except those papers he took." He frowned. "That man in uniform acted like a policeman. He had a badge . . ."

"I'm getting headache," Paula said shakily. "Take me home, darling."

The phone rang. Jan carefully lifted the tip of the electric soldering iron from the maze of wires, small radio tubes, condensers, and case-covered units of the electronic device he was putting together.

He crossed the laboratory to the desk. Lifting the telephone receiver, he said, "Hello?"

"Jan!" It was Paula's voice exploding into a note of relief. "I just saw him!"

"The killer?" Jan said excitedly. "Where are you? I'll get the police and come right over."

"No, not the killer," Paula said, "Fred Stone."

"Fred Stone?" Jan echoed. "But you couldn't! He was killed."

"That's who I mean," Paula said.

"I just saw him. He was standing on the corner. By the time I could get to where he was he was gone; but there wasn't any doubt. It was him!"

"Where are you now," Jan asked.

"Downstairs," Paula said. "I'm coming up."

"Wait!" Jan said, "I'll be right down. I want you to show me where you saw Fred Stone."

"No," Paula said. "I think he was looking for the address where your office is. You should stay there in case he calls."

There was a click at the other end. Jan hung up, looked around the laboratory, then went to the door and opened it to look out. He left the door partly ajar and went back to his soldering. A few moments later there were sharp clicks of heels from the hall. Paula came through the door, her eyes bright with excitement.

"Good morning, darling," she said, going up to Jan, placing her hands against his chest, and giving him a light kiss. When Jan tried to kiss her again she evaded him. "Wipe the lipstick off," she said. "You may have callers."

"That's right," Jan said, taking out a handkerchief and rubbing his lips. "But Fred Stone—huh-uh. You must have seen someone that just looks like him."

"I'd swear it was him," Paula said, becoming serious. "Remember, I saw him quite close. I couldn't mistake someone else for him."

"But you didn't see the man on the sidewalk close up?" Jan said.

"N-no." Paula hesitated. "But he was wearing the same clothes. Ordinary business suit, but if you remember it was cut a little peculiar-

ly and a shade of gray I've never seen before. I couldn't be mistaken."

"We'll settle that right now," Jan said, grinning.

He went to the phone. In a few moments he was connected with his party.

"Hello," he said. "Trowbridge? This is Jan Stevens."

"Oh, hello, Mr. Stevens," the voice at the other end said. "I was just going to call you. I'd like for you and Miss Morris to come down to my office. Can you take the time?"

"Of course," Jan said. "We'll be right down. She's here with me. But I wanted to ask you something. Do you still have the body of the man who was shot last night?"

"Of course," Trowbridge said. "Down at the Morgue. Why?"

"Are you sure?" Jan asked. "Paula insists that she just saw him down on the corner very much alive."

"What!" Trowbridge's voice barked. There was a brief silence "On second thought, Stevens, stay where you are. I have something I want you to look at. I'll come over to your laboratory. You and Miss Morris stay there. I won't take long take long to get there."

"We'll be here," Jan promised. He hung up. "The detective in charge of the murder investigation is coming up," he told Paula.

"He says they still have the corpse in the morgue."

"I don't care," Paula said doggedly. "I'd stake my life that it was the same man."

"There are enough crazy things about this," Jan said. "I think you're wrong—"

The phone rang. Jan picked it up.

"Mr. Stevens," the voice of Trow-

bridge spoke. "I just checked with the morgue. Don't know why I did. A hunch. It paid off. The corpse is gone."

"Huh?" Jan said, startled.

"You and Miss Morris be down on the sidewalk waiting," Trowbridge went on. "I'll be over as fast as I can get there—which will be about as long as it takes you to get down to the street. I'm bringing men to help look for Fred Stone."

Jan hung up. He looked at Paula. "The corpse has vanished," he said.

"Then it was Fred Stone!" Paula said triumphantly.

Jan shook his head. "Fred Stone was dead," he said positively. "He couldn't come back to life." He was taking off his laboratory apron. "Trowbridge wants us to meet him down in front of the building right away. He's going to try to find Fred Stone—or whoever it was you saw."

He tossed the apron on a lab bench. They went out, slamming the door.

The door opened again in twenty minutes. Paula came into the lab, followed by a man with wide shoulders and angular jaws. Trowbridge. Jan followed, closing the door.

"If he's still in the neighborhood," Trowbridge was saying, "the men I've got staked out will see him."

"Personally I think Paula was mistaken," Jan said. "That man, Fred Stone, was dead. It couldn't be him."

"That's what the coroner says too," Trowbridge said, "but the corpse is missing. It was either stolen right out of the morgue or it got up and walked out." He studied Jan quietly for a moment. "How about telling



me the truth, Mr. Stevens?" he asked quietly.

"What do you mean?" Jan asked uneasily.

"For one thing," Trowbridge said, "you claimed you have never seen Fred Stone before last night when he stood up in the audience to ask you a question. But three people swear that the last words of the dying man were addressed to you, and they were, 'I should have waited to hear what you wanted to tell me.' That indicates he knew you or had seen you before."

"Not necessarily," Jan said. "He could have been referring to waiting to be shot until I had answered his questions. When people are dying they sometimes say peculiar things. At the time that's what I thought—that it was an attempt at humor on his part. A sort of 'Too bad I had to get shot. Darned impolite of me,' sort of thing. I still think that's what it was."

"Also," Trowbridge went on, "several witnesses tell me you took some papers out of Stone's pocket. What did you do with them, and why didn't you hand them over to me when I arrived on the scene?"

"Oh, those," Jan said uncomfortably. "They're gone. The—" He took a deep breath. "Paula and I came here afterwards last night. I wanted to try some tests on those papers. The killer showed up and took them away from us."

"I see," Trowbridge almost whispered. "And of course you called the police at once." Then, when Jan shook his head mutely. "Why not? What do you think the police department is for? I don't like this. You aren't acting like an innocent bystander who saw a stranger shot. You steal papers. The killer shows up and takes them

away from you, and you keep mum about it." He glared at Jan. "I think you'd better start talking, or I'm going to have to lock you up as a material witness and—" He clamped his lips together.

"You won't believe the truth," Jan said, "so there's no use talking."

"Why don't you try me?" Trowbridge said.

Jan looked at Paula helplessly.

"All right," he said. "The talk I gave last night wasn't a prepared speech. It was off the cuff. I understand a stenographer was there taking shorthand, and the speech would be published in the quarterly journal of the Society; but last night there was no existing copy of my speech—couldn't be." He paused a moment, then went on. "Those papers I took were printed pages out of a journal, and they were my speech as I gave it last night. The paper was several years old."

"Go on," Trowbridge said. "I'm listening."

"In other words," Jan said, "those papers were impossible. They couldn't be in that man's pocket—unless he came from the future. Time travel. Coming back in Time from the future."

"I don't quite follow you," Trowbridge said.

"What I mean is," Jan said, "in a few weeks or months the stenographer will have translated her shorthand notes and my speech last night will be printed in the journal. It will be sent to a few hundred members of the society. Some will go to libraries. They set on shelves for years. Fred Stone, after quite a few years, runs across a copy of the journal, reads my speech, and by means of time travel

comes back to attend the meeting and ask me some questions."

"And gets shot," Trowbridge added. "Tell me, doctor, just how far in the future did he come from?"

"Twenty-one sixty-three," Jan said quietly.

"You got that, of course, from the card in his billfold."

"Yes," Jan agreed, "but I confirmed it before they were stolen from me. I did that by measuring the radio-activity of the paper and computing it with charts."

Trowbridge looked at Jan with a sarcastic curve to his smile. Then slowly it was replaced by a frustrated expression.

"That's so absurd," he said, "that I find myself half believing it against my will." He paced around the lab, a frown on his face, while Jan and Paula watched him. "You know," he said, turning toward them abruptly, "if what you say is true, then Fred Stone could have been killed last night and yet be walking around full of life today."

"How?" Jan said. "I don't see how time travel could bring a man back to life after being dead. That's the thing I can't see."

"If he could come to last night from the future, Trowbridge said, "he could go to last night from today."

"That's right!" Jan exclaimed. "The man Paula saw could be Fred Stone then!"

"The way I see it," Trowbridge said, "right now he's trying to find you. That's what he's doing in this neighborhood. He can't find you, so he takes another jump backwards in Time and attends the meeting. Then he gets killed."

He looked at Jan and Paula who

were staring at him with horror filled eyes.

"Another thing," Trowbridge said. "It gives his last words some sense. Suppose he does find you—say an hour from now—and you start to tell him he's going to be killed last night"—he chuckled dryly—"but he's scared away and doesn't have time to listen to you. Then last night when he was shot he suddenly realized you had tried to warn him."

Breath exploded from Jan's lungs. He leaned against a bench weakly.

"But now that we know all that," Paula said excitedly, we can be prepared and force him to listen. Then he will know, and won't go back to last night, and won't be killed."

"You think so?" Trowbridge said dryly. "You forget that his being killed is already a fact. You can't change it."

"But when we see him it won't have happened yet to him," Paula said. "It's still in *his* future, and he can change that by simply not going back to yesterday."

"Trowbridge is right," Jan said wearily. "We'll see Fred Stone sometime in our future. Maybe today when he locates us. But everything that takes place is unchangeable. His future has already happened. It can't be changed."

"If it could," Trowbridge said, "we could borrow his time travel machine or whatever it is he uses, and whenever there's an accident and someone gets killed we could go back before the accident and warn the victim, and the accident wouldn't happen."

"Maybe that could be done," Paula said earnestly. "And even if you're right, we shouldn't give up. We should

try to change what has happened. We must warn him."

"Of course we'll try," Jan said. "But didn't he imply last night with his last words that we tried to warn him?"

"Oh!" Paula said angrily. "You're already giving up. I can just see you, January, trying half-heartedly to warn him, because you're convinced ahead of time that you won't succeed. We've got to really try. We've got to save his life. Do you understand?"

"Miss Morris is right," Trowbridge said. A twisted smile appeared on his lips. "And don't ever say anything about this. If my superiors ever learned I had treated your story seriously they'd put me back on a beat." He sobered. "Fred Stone will probably contact you here. He'll have to if you two stay here, anyway. So what we'll do is this. We'll get some men up here. In the hall and elevators, right in this room, down on the street. The minute Fred Stone shows up we'll grab him and hold him until we can make sure he knows he's going to be killed last night. That's all we can do."

He went to the phone . . .

"Some more coffee, Paula?" Jan asked, holding the thermos invitingly.

Paula looked down at the remains of the meal on her plate and the empty coffee cup. "No, thanks," she said. "I'm so full of it now it's running out of my ears."

Trowbridge punched out a cigarette on the already overfilled ashtray. "I'll have another," he said. He stared at the top of Jan's head as the coffee was poured. "You know, Jan," he said slowly, "there's one thing I haven't got straightened out yet. Why was—or will be—Fred Stone

killed? The way you painted it he was just curious about your speech and wanted to ask a question or two about it. So he travels back in time to ask those questions. What was your speech about? Why should anyone a couple of hundred years from now be so curious about what you said—or didn't say, to be more exact. And why should he be killed *before he could find out what he wanted to know?*"

Jan looked at Paula, frowning. "I don't know," he said. "I've been trying to figure out that myself. But there's another possibility. Suppose he was killed to prevent him from revealing something, rather than to prevent him from finding out something."

Trowbridge thought this over, lighting another cigarette.

"If that's the way it is," he said, "then the future is able to change. If it couldn't whatever he might possibly tell you wouldn't matter. It would be a matter of history whether he did or not, and it would be silly of the killer to try to prevent something that had already happened anyway."

"No," Jan said. "I think the future is an open book that can be changed. It's the past that can't be changed."

Paula snorted. "Don't forget all this is the remote past to the time Fred Stone came from," she said. "By the same token it would be unchangeable to him. And to the murderer."

"Paula's right," Trowbridge chuckled.

"Then we come down to this," Jan said. "We know that travel in time is possible now. We could have some-

one come back to our present time from a million years in the future—or up to the present from a million years in the past. Either none of it is changeable, and our least little thought or action is as unalterable as a movie, or else it's all changeable. If it's unalterable there's no such thing as free will. Even the flutter of an eyelid is as unchangeable as the travel of the planets in their orbits, according to the one picture. In the other picture, the past could be changed. Columbus could be prevented from discovering America at any moment—and we would cease to exist."

"I doubt if it would be that drastic," Trowbridge said. "If Columbus was prevented from discovering America, someone else would. Details could be altered but major trends and developments probably couldn't."

"Maybe," Jan said doubtfully.

"But let's get back to the subject," Trowbridge said. "Do you know anything that a man from the future might be very anxious to find out? Enough so to come back in Time? Something so important that someone else from his Time would follow him and kill him to keep him from finding out? *Something the killer knows?*"

Jan stiffened in surprise. Trowbridge watched him intently.

"So there is something," he grunted.

"No," Jan said with a supreme effort at being casual. "It's just that I hadn't thought of that possibility before—that the murderer might know something he killed Fred Stone to keep him from finding out." He had gained control of himself now. "How could I know what it is? Something hinted at in my speech perhaps. Some

little thing I don't know the implications of, that two centuries has brought out in a different light that I can't suspect."

"Or something that you as a scientist have discovered and never given out to the world," Trowbridge suggested. "What's the name of this best seller of yours? I think I'd like something to read while we wait for Fred Stone to show up."

He went to the phone, picked it up, and looked questioningly at Jan. Jan shrugged in defeat.

"You'll find a copy, in the top drawer of the desk," he said glumly. "It's called 'Me and My Robot'."

"Thanks," Trowbridge said, returning the phone gently to its cradle. "Thanks." He opened the drawer.

Trowbridge closed the book slowly. He looked up at Paula, across the laboratory asleep on a cot that had been set up, and at Jan who was heating some fluid in a test tube over a bunsen burner.

"Nice story, Jan," he commented. Jan looked over at him and smiled nervously. "An intriguing story," Trowbridge went on. "So well written that at times I almost became convinced it was a true story. That idea of a recording of the mind—taken from the idea of taking a recording of the voice, no doubt—and placing it in a synthetic brain that controls a robot body. *That* could be fact. I've seen one of those robot monstrosities they build for the movie and television shows, with its plastic muscles that look and perform just like real muscles." He looked down at the book on his knee and tapped it significantly while Jan watched. "The way you tied it up so neatly, too. All

the robots destroyed. The secret safe in the mind of the hero where it was destined to remain, because it was too dangerous to let loose. I suppose your speech last night was about this book?"

"Yes," Jan said, turning back to the now boiling test tube.

"The hero George couldn't have been you, could it, Jan?" Trowbridge asked dryly.

"Why of course not," Jan said without turning to look at Trowbridge.

"It's just a story. That's all."

"And the girl in the story—Louise—she couldn't by any chance be Paula?"

"Well," Jan said, "of course I made her very much like Paula."

"How long has Mr. Morris been dead?" Trowbridge asked. He jumped to his feet abruptly, a startled look on his face. "Wait a minute!" he exclaimed. "A year and a half ago I was on a case. A patient in a hospital that was going to die anyway in a few hours was supposedly killed. The outer layer of his brain was fried in some mysterious way. If he was killed—even the doctors couldn't be positive one way or another—it was just the way it happened in your book when the fellow's mind was transplanted into the synthetic brain, killing him in the process." He nodded slowly. Jan continued to concentrate on the test tube, his back to Trowbridge. Trowbridge smiled at the back sympathetically. "Don't worry, Jan," he said. "Your secret is safe as far as I'm concerned."

"You mean—" Jan said, turning abruptly to stare at the detective with hope dawning in his eyes.

Trowbridge nodded. "If the story in this book is true," he said, "I

agree with you that it should be kept secret. Forgotten."

He stretched wearily, laid the book on the desk.

"But it's only fiction," Jan said smiling queerly. "How could it be anything else? Don't you agree?"

"Of course," Trowbridge said, grinning.

He went to the door and opened it, sticking his head out into the hall with his shoulders against the door edge and the wall. The low rumble of whispered conversation went on for a minute, then he stepped back into the room, two plainclothesmen coming in.

"I'm going home, Mr. Stevens," Trowbridge said. "These men will stay here with you. They'll be relieved at midnight. You and Miss Morris are to remain here until Fred Stone shows up. If you want anything, one of my men will see that you get it." He looked over at Paula who was still asleep, nodded in Jan's direction, and left.

The two men took up positions on either side of the door and pulled up laboratory stools, settling down to a long vigil.

Trowbridge, freshly shaven and alert looking, smiled sympathetically at Jan and Paula. "Too bad you had to stay here all night for nothing," he said. "It'll probably be all over by noon. Then you can go home and get some real rest."

"I didn't mind," Paula said. "It's worth it if we can save Fred Stone's life."

"I did some work," Jan said. "The times wasn't exactly wasted."

The phone shrilled unexpectedly. The three of them looked at it, then

at one another Jan went to it. Lifting it hesitantly he said, "Hello? Yes, this is Mr. Stevens . . . That's quite all right . . . Yes. Thanks very much for telling me . . . It was quite all right . . . Goodbye." He hung up, an excited expression on his face.

"That was the president of the Society," he said. "About fifteen minutes ago a man called her and asked where he could get in touch with the author of 'Me and My Robot'. She told him, then got to wondering if she had done the right thing. That's why she called." He looked from Trowbridge to Paula excitedly. "Maybe it was Fred Stone!"

"Did she give him this address?" Trowbridge asked.

"Yes," Jan said. "It was the only one she knew."

"Then he should be here almost any minute!" Paula said.

"My man in the lobby of the building will call up as soon as he gets on the elevator," Trowbridge said. "When he gets on this floor there are men posted out of sight who will prevent him from leaving until and unless I give an okay."

They looked at the door, becoming conscious of the occasional footsteps outside in the hall as people passed by, the vague shadow outline of their forms as they passed the frosted glass of the door.

"They might miss him," Jan said.

"It's possible, of course," Trowbridge said. "But—"

He stopped. Someone had halted outside. The shadow of an arm went up. A knock sounded.

"They missed him in the lobby," Trowbridge said in a low voice, "but my men in the hall will see him and close in as soon as he enters. Go to

the door and let him in, Jan."

Jan was already on his way to the door. He opened it wide. Standing framed in the doorway was—not Fred Stone—but the man who had killed him!

"Are you January Stevens?" the man asked politely

"Why—why yes," Jan stammered.

"May I come in Mr. Stevens?" the man asked. "I see you have company but what I want to see you about is very important."

"Come right in," Trowbridge spoke up, his voice overly loud. Two men had appeared silently behind the man. "Bring him in, boys," Trowbridge added as he saw them.

The man, feeling heavy hands grasp his arms, turned startled but unafraid eyes at them. As they firmly pressured him through the doorway into the laboratory he started to resist, then gave in, a puzzled but tolerant smile on his lips.

"We didn't expect *you*," Jan said.

"Naturally not," the man said.

"Who are these people, the police?"

"Yes," Jan said.

"Yes," Trowbridge echoed. "Jan, is this the man you saw?" When Jan nodded he turned to the man. "I'm arresting you for murder," he said simply. "I'd also like to ask you some questions right now before the boys take you in; but I also have to advise you that anything you say can be used against you as evidence, and you don't have to answer any of the questions before getting an attorney." He looked past the man to one of his two subordinates. "Put the cuffs on him. We don't want to take any chances."

Jan and Paula watched, fascinated, as the handcuffs were snapped on the man.

"What's your name?" Trowbridge asked abruptly.

"Sigmund Archer," the man answered. He looked from Trowbridge to Jan and Paula, his eyes bright—almost laughing. "Would you tell me the name of the person I'm supposed to have killed?" Trowbridge stared at him but didn't answer. "Would it by any chance be Fred Stone?" Sigmund Archer asked.

"You should know," Trowbridge grunted

"But I don't," Archer said, showing relief. "I just wanted to make sure it won't be—wasn't some innocent party."

"It was Fred Stone," Trowbridge said. "Why did you do it?"

Sigmund Archer laughed. Jan fought to keep from smiling, and looked at the puzzled frown on Trowbridge's face.

"Don't you see what he's laughing about?" Jan said. "He hasn't gone back to night before last and killed Fred Stone yet. If you arrest him for that murder it will prevent him from going back and committing the murder. There won't have been any murder, and you can't convict him."

"So it will be the night before last!" Archer said musingly.

"Keep quiet and let me do the talking," Trowbridge said to Jan sternly. Then to Archer, "If that's the way it will be, okay. I'd much rather prevent a killing than catch a killer. You're still under arrest until we can warn Fred Stone."

"If in my future I shoot Fred Stone night before last in your past," Sigmund Archer said, "isn't it a foregone conclusion that you aren't going to be able to hold me and prevent that which has already happened?"

"You're in a better position to an-

swer that than I am," Trowbridge said. "I don't know anything about the mumbo jumbo of time travel. All I know is that a murder has been committed, and that you have been positively identified as the murderer. It's my duty to arrest you and bring you to trial. I intend to carry out my duty."

Sigmund Archer looked at Trowbridge, his smile fading slowly.

"I suppose you have Fred Stone's remains," he said suddenly. "Mind if I look at them for the purpose of identifying them?"

Trowbridge opened his mouth, then clamped it shut, giving Jan Paula warning looks. He appeared to be thinking for a moment.

"We might arrange that later," he said cautiously.

"In other words you had the body but it's vanished," Archer calmly. "That would make an interesting point in law, if it ever came to court. But it won't, because if it did there would be a record of it *where* I come from."

Anger suffused Trowbridge's features. He opened his mouth to make an angry retort. The anger vanished abruptly, to be replaced by shrewdness.

"I nearly forgot the main question I was going to ask you," he said. "Why are you after Fred Stone? Why did you shoot him?"

"I didn't—yet," Archer said. "My reason—I'm quite sure that January Stevens can guess that."

He looked at Jan. Trowbridge smiled knowingly at Jan and said, "It's possible I could guess far more accurately than he could."

"I'm thirsty," Sigmund Archer said abruptly. "Could I have a glass of water?"

"I'll get it," Jan said, going to-

ward the water cooler against the wall. All eyes were on him for an instant.

A clang of something metallic falling to the floor jerked their attention back. Sigmund Archer had vanished. The handcuffs that had been on his wrists were on the floor.

"I caught it out of the corner of my eye," one of the two detectives said "He became sort of transparent like he was made of glass, and vanished."

"And," Trowbridge said dryly, "he could have done it at any time since he came in here."

The phone shrilled with startling suddenness. It was Trowbridge who recovered from the paralysis of surprise first. He took two quick strides to the phone and scooped it up.

"Yes," he said curtly. Then, "Okay, stand by down there. Don't let him out if he goes back down." He dropped the phone and looked at the others, "Fred Stone just entered the elevator," he said quietly.

The knock at the door was three regularly spaced polite raps. Every eye was fixed intently on the shadowy movements on the frosted glass that accompanied the knocking.

It was Trowbridge who went to the door, motioning Jan back.

Jan looked at Paula desperately, then took a deep breath. Paula, eyes round, turned from him back to the door as Trowbridge twisted the knob.

After he had twisted the knob Trowbridge seemed to hesitate a second. Then he jerked the door open and reached out, seizing the startled Fred Stone by the arm and jerking him off balance, propelling him into the room.

"Fred!" Jan said swiftly. "You're going to be killed!"

But the hurtling figure of Fred Stone had vanished before their eyes, leaving

Trowbridge with a stupid surprise on his face as he looked at his empty fingers.

"Now you've done it!" Jan said. "You scared the wits out of him with that stupid play."

"Maybe he'll be back," Trowbridge said, still looking at his hand peculiarly.

"Be back?" Jan echoed angrily. "Don't you remember what he said just before he died? That he wished he had waited to hear what I was trying to say to him? He won't be back. He's gone back in time to attend that lecture and ask his questions—and be killed."

"I guess you're right," Trowbridge said, shaking his hand jerkily as if it was asleep. "So there's no use sticking around here any longer." He gave his two subordinates a significant look and went to the door.

He opened it and stood to one side while they went out. His eyes were on Jan, sympathetically. Jan was glaring at him, so angry he was speechless.

"I wouldn't bother about it too much if I were you, Jan," he said kindly. "Remember you have a secret you'd die rather than reveal. A scientific secret that could conceivably do a lot of damage in the wrong hands—now or two hundred years from now. Me, I probably wouldn't understand it if you told it to me. One thing I do know though is cops. Being one myself I can tell one a mile off." A grin flashed across his face as he backed out of the door. He closed it until only his face and part of his body were visible. "You see, Jan," he said softly, "Sigmund Archer was a cop."

He withdrew his head. The door closed softly.

The End



# THE GREAT INVASION OF 1955 DAVID REID

*Here is a period piece—a look at our world from the depths of 1932—a perfect example of SF prediction, and its accuracy. The Japanese invasion and atomic number manipulation score high. But the dates are way off—and that helicopter!*

OF course it's all old history now, but after seeing the brief three minutes devoted to it in my grandson's picture-phono history, I feel that one so intimately connected with these events as I was, should tell something about the manner in which the United States was saved from foreign invasion by Harvey Wilkins back in those hectic days in 1955. I feel that he should receive a little more credit than has been given him.

It was in 1940 that Harvey Wilkins and I were students and roommates in college. He was a sort of fragile chap with light hair and blue eyes. He was a bit near-sighted and he gave the impression of a rather small ruffled owl, when he peered at you through his horn-rimmed glasses. For all his queer appearance he was a very friendly sort of fellow, as I soon found out when I became his roommate.

We both majored in chemistry and in all the time we were together we never quarreled. We struggled through all the various courses together with varying degrees of success. I could handle routine chemical analyses a trifle better than he could, but when it came to theoretical chemistry, he left me far behind.

It was a warm spring morning in 1943 and I was half asleep in physical chemistry—chem. 142 they called it—when I noticed Harvey next to me was sitting on the edge of his chair with a rapt expression on his face watching the figures and circles the professor was putting on the blackboard. Usually we had illustrated pictures and diagrams, but this morning the professor had elected to draw his own.

“And very little more is known about this subject than was known

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some ten years ago," the professor was saying. "It has baffled the efforts of all the great scientists, but someday it will be solved. Undoubtedly, with the solution of this problem will come the emancipation of the world from much of its labor."

When I came home that night, I found Harvey tremendously excited.

"Say," he began, "did you listen to the lecture this morning?"

"I was asleep," I confessed. "What was the old duck raving about?"

"Raving?" repeated Harvey, staring at me incredulously—he took his professors very seriously—"Why, he was talking about the most interesting subject in chemistry—that is to say, in the world. He lectured on atomic disintegration."

"Pure bunkum," I responded rather contemptuously, my interest evaporating at once. "That is one problem that will never be solved." I left him before he could start arguing because I knew from past experience that I would lose any argument on theory with him. I would have to agree, whether I believed him or not, in order to get some peace. Harvey Wilkins had a peculiar bulldog tenacity that made him never give up an idea that he was once convinced was practicable.

Well, things ran on in their usual course and we graduated with our Bachelor's degree in chemistry. It was just at this time that fate stepped in with a little incident that probably changed the history of the world. The incident was only a carelessly handled rifle up in the Canadian woods, but it resulted in the death of Harvey's multimillionaire uncle. When the will was read, it was found that

Harvey was the sole heir to his uncle's millions. Harvey was thus enabled to go out west to Arizona—his lungs were weak—and to build himself a wonderful research laboratory, with a corps of assistants and all the apparatus that he wanted. Of course, he offered me a job but I had already agreed to go into the government service and he did not urge me.

I worked up from a junior chemist in the government service until I became a senior chemist. Then I was transferred over to work on some cases for the diplomatic service and I became a permanent fixture there. My chemical training enabled me to take a scientific view of many things, and to give advice that proved helpful to those who controlled the destinies of the nation.

In all this time, I had not lost track of Harvey. Although I had not seen him since college days, I knew that he was unobtrusively making a name for himself in radio-chemistry. I corresponded with him quite frequently, so it happened that I knew about his new process for extracting radium salts from the ores. That was his first great step toward his goal, for it gave him material to work on. Incidentally it brought him fame and considerably more money.

It was several years after this initial discovery of his, that the events occurred leading up to the Great Invasion. My first intimation of anything unusual was when I was called into the office of the Secretary of War. When I entered, he was sitting at his desk frowning and petulantly hitting the corner of his desk with an extremely thin piece of metal about six inches by four. When I came into

the room he jumped up and stuck the piece of metal out at me accusingly.

"What's that?" he demanded.

"Looks like a piece of metal," I answered flippantly.

"Feel it," he said.

Then it was my turn to gasp. The sample was very light and it had a peculiar greyish sheen to it. When I started to bend it, I found to my surprise, that, although the little sheet of metal was almost incredibly thin, it resisted my utmost efforts to bend it. In some ways it reminded me of spring steel.

"A new alloy," I breathed, and turned to the Secretary eagerly. "What is it?" I asked.

He threw up his hand impatiently and sat down rather wearily.

"That's for you to find out," he said. "That's the most important job we've ever turned over to you."

"Where did you get it? Is there some more?"

He leaned over his desk and pointed his finger at me impressively.

"Young man, that little piece of metal has already cost us the life of two of the best men we ever had. It's more dangerous than if it were high explosive and more valuable to us than if it were made of diamonds."

"But why?" I interrupted. "Is it—"

He waved my interruption aside impatiently.

"One of the best spies we ever had got wind of the fact that something was strange about a little island off Japan. He posed as a tourist but was politely but firmly steered away. Naturally that only increased his determination to find out what was going on. He and two other men got there in a motor boat and holed up in a

little cove on one end of the island. Here is the typewritten report of the operator who survived and came out with the sample of alloy.

I took the typewritten manuscript rather gingerly. I was used to danger of various sorts, but somehow this seemed to be a sort of cold-blooded affair. The manuscript ran as follows:

### Report of Operator BXV3

This is a resume of recent happenings on Island—(The name had been eliminated) off the coast of Japan. Operator BXV8 was the first to discover the fact that there was unusual activity on this island and myself and Operator BXV5 were ordered to report to him with a large motor boat on the night of June 16th. This we did as ordered, and picked him up. After several hours' run, we docked in a little rocky cove at the end of the island. The place was deserted and we managed to conceal our boat. Leaving BXV5 on guard, BXV8 and I went to look over the ground. We found that in the center of the island there was a large plant of some sort. Owing to guards, we were unable to get very close but BXV8 tried it alone. When he came back to me in the early morning, he told of a large plant which, he said, was engaged in the manufacture of parts made out of a sort of grey metal. He said that the substance must be incredibly light, because he had observed a small Japanese pick up an enormous bar of metal. He also said that the metal was made in a small building that seemed to require an enormous amount of electric current, judging from the dynamos. He said that he would risk getting a piece of it the next night. We spent the day

safely hidden and that evening BXV8 went after a sample of the queer metal. I accompanied him part of the way and waited for him most of the night. It was early in the morning when he returned with several soldiers after him. He received a bullet through his lungs but he managed to get to me. He died there but he gave me the piece of metal. I shot two of the soldiers, and succeeded in getting back to the boat. BXV5 had the motor going immediately. Unfortunately BXV5 was shot by a soldier as we were leaving, but I managed to get picked up by a steamer. I then managed to get here without mishap. I believe that I was traced by the Japanese, because there was an attempt at assassination as I left the steamer.

Respectfully submitted—BXV3.

I looked up from the report and handed it back to the Secretary with a puzzled frown.

"Then I suppose you want me to analyze this sample, and duplicate the alloy if possible?" I asked.

"I suppose you realize what a metal as light and strong as this one means to aviation." Without waiting for my answer, he continued. "It means that Japan will be able to take the leadership in aviation. Not only that, but if she builds airplanes with body, wings and engine made out of this material, she will be able to launch a fleet against us that we will be unable to defend ourselves against. With naval carriers and planes that can carry an enormous weight of fuel, Japan can sweep far inland to our great cities and wipe them off the map. With the United States unprepared, Ja-

pan can establish a base in Canada or in one of the Northwestern states. Before we can get ready to defend ourselves, their new planes will sweep us off the face of the earth, or at least bring us to terms."

"But our own planes," I protested.

He waved his hand wearily.

"Planes built of this stuff can outmaneuver us. Their planes will stand greater strain than ours. Our own heavily built planes will be swept aside like tissue paper. What we must do is duplicate this alloy and build a defensive fleet. That or find a new means of defense. The first named is your job."

He waved a hand in dismissal and I left the building with my precious sample. Outside, four guards fell in behind me. I realized that I had become an important personage since I had charge of the alloy. Incidentally, it might have been an accident, but my car was run into by a large car driven by a Japanese chauffeur. I luckily escaped injury, and my guard, following in another car, quickly rushed me to the laboratory.

Perhaps you can imagine my surprise when I learned that the new alloy was composed principally of lead. True, there were a few other components, but they were of relatively little importance. All my attempts during the next week to duplicate the alloy failed. I concluded that it was a new crystalline allotropic form of lead. In some way, the Japanese had discovered how to crystallize the lead in such a form as to give it this extremely strong feature, even though it was very thin and light. I concluded that the atomic structure must be very unusual to give

it so many unusual properties.

My conclusions were verified when a small piece of the alloy was put under a pressure of many thousands atmospheres. The result was a drop of ordinary lead of many times less volume than the original piece. This proved my crystalline theory, because pressure always tends to put a substance in the denser form. An example of this is the fact that pressure lowers the freezing point of water, thus tending to keep the water in the denser, or liquid, state.

In this dilemma, my thoughts naturally turn to my old friend Harvey Wilkins.

While I was puzzling over the matter, an assistant came in with a report that decided me. He had been working on the atomic weight of the lead and he reported to me that it had an atomic weight of 206. That night I took the night air-express to Arizona.

I may explain here that 206 is the atomic weight of a substance which is identical in every way with lead except for the atomic weight and a very little difference in the density. Ordinary lead is 207.2 while the two other "kinds of lead" identical in every way, except for atomic weight and density, have atomic weights of 206 and 208. These are called isotopes and they result from the disintegration of radium and thorium respectively.

I confess that the thing was entirely beyond me. I couldn't figure out where they could have got such enormous quantities of lead with an atomic weight of 206. I knew that way back in 1915, lead from all over the world had been collected with results that all checked at 207.2.

It was midnight before we made our first stop and I got hold of a newspaper. I was shocked to see the headlines shrieking that "*War Clouds Threaten.*" The account said that there had been some trifling misunderstanding over some Japanese in California, and that Japan was demanding an explanation in very belligerent tones.

I also noted, down in one corner, that an enormous fleet of Japanese "tramp steamers" was now more than half way across the Pacific, "destination unknown" but "believed to be headed for South America."

As we walked, I took in the beautiful scene which lay before my eyes. Harvey had picked an ideal location. In the background, lofty mountains reared themselves against the rising sun. The flying field was long and narrow and had several hangars at one end. At the edge of the field, as I have said, stood the laboratories and living quarters. These I now had opportunity to observe more closely. All the buildings were built of grey concrete with very little attempt at ornamentation. None were over two stories in height, except one which had a small observatory tower on one end of it. It was to this structure that Harvey led me. He took me to what I guessed to be his own private "den."

"Sit down and make yourself at home," Harvey said. Then excitedly, "Do you know, I think I've got my problem nearly solved?"

I confess that I was a little brusque. "Small good it will ever do you," I said. "In a couple of weeks we'll all be working for the Japs—those of us who aren't dead."

Harvey looked a little hurt but he

politely asked me to "spill my tale of woe."

Harvey sat silently, thinking for a while, and then asked me questions about the alloy. I showed him my sample and he became quite excited over it, firing question after question at me.

"What we want," I said, "is something that can be used for defense. The alloy is of little use now. Why Japan may have declared war already."

"Give me the list of properties," he said, quietly. "It may be of some use. I'm not a magician, you know."

I gave him the list of properties of the alloy and watched him run down the list from specific gravity, melting point, tensile strength, and so on to the last one that I had jotted down—the atomic weight of 206.

I heard him gasp and he looked up suddenly.

"Is this atomic weight of 206 well established?" he asked eagerly.

I nodded.

"I think your problem is solved," he said.

"How—when—why?" I gasped.

He held up his hand soothingly.

"Let us go out and see how "Bird" is coming along."

I knew then that he would say no more. In some ways Harvey Wilkins was a very obstinate man.

As we walked out on the field we noticed that everybody was excited. They all seemed to be watching a small black spot that hung motionless up in the sky.

"It works, Dr. Wilkins, it works!" a man exclaimed.

"I knew it would," Harvey said.

It was not until a little later that I realized that I was present at the first

flight of "Bird" Howard's helicopter. Of course there were many helicopters before his time, but they were only the forerunners. The machine that I saw that morning was the first of the new type. When he landed, I took the opportunity to examine it and its maker closely.

"Bird" was just a slender, fair-haired boy, who was only two years graduated from an aviation college. He had won a special two-year scholarship and had come here to continue his work on research in aviation.

His ship was not as stable nor as large as later ships, but it was a fairly good machine. It had an octagonal platform about twelve feet wide. Underneath this platform there were eight rods, which supported the machine as it landed. Each rod slid in its setting and allowed the machine to settle down gently on four wheels. The rods could then be drawn up to allow the machine to be wheeled close to the ground. The platform had a sort of observation cockpit with the controls which was built in the middle of it. At the front and on each side were propellers to propel it forward through the air.

At the back was a fourth propeller to pull the machine backwards in case the pilot happened to overshoot his mark. A large fin, sticking out at the back, below the fourth propeller, was the only provision that I could see for directing the machine, although I later learned that it could turn around much more quickly than any ordinary airplane, by the simple process of cutting out one of the side propellers.

The most novel innovation, however, was the lifting device. Extending above and to each side of the plat-

form were two rather small wings and above these were at least a dozen propellers of various sizes and shapes. Most of the motors controlling all these were located in the steel framework above the platform and even with the stubby wings. I also learned that there was a gyroscope in the center of the platform that acted as a stabilizer.

"—Just a rickety old boat," Bird was saying exultantly, as we came up. "She'll probably shake herself to pieces pretty soon, but she's proved practical and that's all I care about. She can't stay up over some five hours at a time and she can't do more than about a hundred and sixty kilometers an hour, but you just ought to see her go up and down. I can drop her a couple of hundred meters and jerk her out of it, though it almost takes the bottom out of her."

"Bird," called Dr. Wilkins, "come over here and let me congratulate you."

Bird came eagerly to get his word of praise.

"I knew you could do it, Boy," was all that he got, but it apparently was enough.

"Bird," he said, "I want you to tighten up every bolt on that thing and be ready to leave for Seattle in three hours or sooner. I'll put every mechanic on the place on her."

"All right, Doc," was all Bird said, but his eyes were shining.

Harvey gave numerous orders and then designated several men to come with him. He turned to me just before he left.

"you better get a few hours sleep," he advised. "If I judge that contraption rightly, we are going to need nerves of steel."

With that he left me and I went

slowly back to his den, and, strangely enough, I slept.

"Let's go," was all Harvey said six hours later.

I went out with him and together we got into a large cabin monoplane which was warmed up and waiting. As soon as its pilot had it headed for Seattle, Harvey lay down and calmly went to sleep.

I hung over the radio, eager to learn the latest developments in the controversy with Japan. As I tuned in on one of the national news-broadcasting stations, I heard the announcer say, "Matters are rapidly approaching a crisis. War with Japan is inevitable. Their demands lead to the belief that they wish to force war upon the United States. Great Britain, as a whole, wishes to keep neutral but Canada is bringing every pressure to bear to throw her forces in with us. Seattle, Tacoma, and other coast cities are being evacuated. Planes are being mobilized on Felt's Field, the great airport at Spokane. No attack is expected immediately, but the fleet is coming north. Hawaii and the Philippines are making frantic preparations for war. The Japanese fleet is reported to be sailing eastward. The most immediate fears result from a large fleet of Japanese ships, supposedly merchant tramps, which were reported to be sailing for South America. It now appears that they are further northward than that destination would indicate. If they are hostile, it will be known within twenty-four hours, for by tomorrow afternoon they will be within striking distance."

That was the most important news that the radio had to offer.

And that one man lying there, peacefully asleep, was intending to

check the supreme power of a great nation!

We arrived at a small flying field near Seattle sometime during the night. Harvey and I were busy from that time until morning, arranging everything and getting things ready for Bird. He and his companion arrived with the dawn and they showed no bad effects from their strenuous trip.

"Well, we got here," he greeted us, brightly. "Had to stop to get the tanks filled twice, and once for engine trouble, but that was all right."

Then it was that I got my first view of the weapon that was to save the United States.

It wasn't very much to look at. It was a tube about three feet long with a large bulb on the lower end. The whole thing was mounted on a swivel base which permitted it to be pointed in any direction. Apparently it was made of fused sand—silica—and it was perfectly clear. The lower part of the tube was sheathed with what appeared to be layers of several metals, the outermost material being lead. I could not see, because of the sheathing what was in the lower bulb. Two wires connected the bulb with a generator. This whole apparatus was soon fastened securely on the platform of the helicopter.

"Now there is nothing to do but wait," said Harvey. "We will be notified by radio of the approach of the enemy."

I think the nervous strain told on all of us except Harvey. While Bird and his companion fussed with bolts and engines; while I paced up and down; while the pilot of the plane that brought us, Buck Walters, hung over the radio, Harvey lay on his blanket, chewing on a straw and gazing up into the blue of the sky.

Suddenly Walters stood up.

"The first fleet is coming," he said quietly. "They are still out about a hundred miles and our own air-fleet will meet them near the shore of Puget Sound, where they can have the help of the shore batteries. That leaves us the space between. Good luck to you. I'll do my part if they don't get me. Goodbye."

He silently walked over to his plane. Though he never came back, the name of Buck Walters will always be remembered as the only American aviator to die in the Invasion of 1955. His body was never recovered, but if you visit Seattle, you will find there a bronze monument with the words on it "He did his duty."

As Walters' plane left the field, our own motors roared and Harvey and I fastened a sort of harness on ourselves. Up, up we went, with hardly a jar.

How long it took, I don't know, but it seemed like hours before we could distinguish that first grey line of planes. Before we could see them, we could see Buck coming back in his plane.

Rapidly we dropped to a height a couple of hundred meters above the enemy.

In the meantime, Buck was off to one side of us a mile or so and almost as high as we were. Then it was that I saw that his mission was to lay a wide smoke screen in front of the oncoming fleet of planes.

Suddenly, the grim grey line appeared.

Steadily, without a tremor, Harvey aimed his tube at one end of the grim, grey line and swept the whole length of it. As though an invisible knife had shorn through them, the line melted away. Parts of some planes disappeared, some vanished com-



pletely, but not one escaped. Falling toward the Sound was a silvery sheet of liquid with the pilots kicking as they fell. Five times Harvey swept that line and five rows of ships went down into the Sound. Then Walters, who had been circling above, looped the loop and we knew that our work was done for the moment.

Twenty minutes later the second fleet followed the first into oblivion.

It was during the annihilation of the third fleet that we came near disaster. Two planes apparently decided to rise to higher altitudes and they saw what happened to their first line of ships.

Without hesitation, one of the ships dived at us. It was only Bird's sudden drop that saved us. We had already finished the second line of planes when we felt the bottom drop out from under us. When our drop was checked, the third line of ships was out of the cloud and the ship that had tried to get us was swinging around to try again. Although Harvey was badly shaken, he managed to pick it off in mid-air and then to get the rest of the ships before they could come within firing-distance. We had been rising and managed to dispose of the fourth row of planes before it got very far.

Suddenly we began to drop again and I looked up to see the second of the two planes that had been above us, coming straight down at us in a power drive. It was at this moment that Buck Walters showed his heroism. How he got off to one side, I never knew, but he came in like a flash of light to collide with the Japanese pilot a scant twenty meters above our heads. The two planes hurtled by us carrying two brave men to

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their deaths.

That was the high point of the whole episode. We wiped out the remaining planes with little difficulty, and then went homewards to receive the plaudits of the nation.

It was nearly a week before Harvey and I could escape from a too-grateful public. Then it was that I sat down and said, "Now, out with it, Harvey! How does that tube of yours work?"

"Well," he said, making himself comfortable. "It all goes back to a day at college when you laughed at me. First, though, what is your idea of atomic weight?"

"Why," I replied slowly, knowing that Harvey would tell things his own way. "An atom of oxygen is arbitrarily set at 16 and every other element is judged by it. For example, an atom of helium is just one-fourth as heavy as oxygen so it is called 4.00. Every other one of the ninety-two elements is compared to oxygen from the lightest element, hydrogen, which is 1.008, up to Uranium, the heaviest, at a little more than 238."

"Very good," commented Harvey, with a smile. "You've learned a little since we left college."

I threw a cushion at him and he carefully tucked it under him.

"Now, I suppose you know that there is a theory that all atomic weights except that of hydrogen are whole numbers. For example, chlorine, usually called thirty-five and a half is really a mixture of atomic weights of isotopes, one of 35 and another of 37.

"Now, Proth, as far back as 1834, thought that all elements were built up from hydrogen atoms. Later, as it was found that helium and hy-

drogen nuclei were very stable, it was decided that all elements were made up of combinations of nuclei of these two elements. An atom is made up of a positive nucleus and a number of negative electrons revolving around it. The electron only weighs one eleven-hundred and fortieth of a single positive nucleus or proton. The loss of the extra weight of the hydrogen atom above one is accounted for by the theory that it is converted into energy, since according to the theory of relativity, mass may be changed into energy. Do you follow me?"

"I'm even ahead of you," I grinned back at him.

"Now to go back a bit, what do you know about the decomposition products of uranium."

"Not much," I confessed. "Go on."

Well, uranium decomposes rather slowly. Half of it decomposes in five million years, giving off a helium nucleus. Half of the product, uranium X1, decomposes in about three weeks, giving off one of the four extra electrons left on it by the helium nucleus, and this product, uranium X2, again gives off an electron, half of it decomposing in about one and a quarter minutes. This third new element, uranium 2, has the same atomic weight as uraniums X1 and X2, and is therefore an isotope of these. Then a helium nucleus comes off giving ionium. Ionium gives off still another helium nucleus and the product is radium. Is my monologue getting too dry for you?"

"Not too dry," I answered, "but I think it's getting over my head."

He smiled and went on, "Radium, as I suppose you know, has a half-time decomposition of two thousand years. Well, it and its products, by

emission of alpha particles (charged helium nuclei) and by Beta particles (unit charges of negative electricity) manage to result finally in a product which cannot be distinguished from ordinary lead except that its atomic weight is 206 instead of 207. Now, I reasoned that the lead could be moved over two places in the periodic table by the loss of a helium nucleus. It should be easier to break down than ordinary lead, which is a mixture of the two isotopes 206 and 208. A shift like that would result in changing lead to—."

"Mercury!" I burst in eagerly.

"Exactly," he smiled. "I built myself a cathode tube using a uranium target a cathode of my own composition of radioactive material. Well, it worked on radioactive lead but on no other kind. Its effect was to cause one helium nucleus to leave the lead. I haven't got the process perfected yet.

"The Japanese evidently found some way to separate lead into its two isotopes and then a way to crystallize the lighter form into this strong and extremely light form. I think that the other things in your sample were just impurities, probably remaining from the separation."

He spread out his hands and shrugged his shoulders. "That's about all. You know the rest. It was simple from then on. The silvery sheets that you saw falling were mercury. And that's about all."

"Well," I said, "Fate certainly works things out just the way she wants them, doesn't she?" Which, under the circumstances, was about all that anyone could say.

The End

AMAZING STORIES

# Santaroga Barrier

## CONCLUSION

*Dasein is scratching at the Santaroga mystery and seems to be getting close to an answer . . . but the closer he gets the more deadly this peaceful valley becomes.*

# FRANK HERBERT

Illustrated by GRAY MORROW

### SYNOPSIS

For DR. GILBERT DASEIN, psychologist, the job of finding out what lies behind the peaceful facade of Santaroga is an opportunity to learn why JENNY SORGE, his former sweetheart and a native Santarogan, has, in effect, dropped out of sight behind the "Santaroga Barrier."

Not that the job in itself doesn't hold a certain professional fascination for him. To begin with, two former investigators on a similar mission have already had deadly "accidents." And then there is the data about Santaroga which just doesn't add up: For instance, why isn't there any juvenile delinquency? And why no reported mental illness?

When Dasein arrives at Santaroga, at first he is almost denied a room at the inn. Then an over-garrulous waiter named WINSTON BURDEAUX serves him food laced with "Jaspers," a local "cheese" product.

And when Dasein finally returns to his room to make a phone call to DR. SELADOR, his department head, he is almost overcome by gas!

He is rescued by Win Burdeaux and AL MARDEN, the Captain of the Highway Patrol. They call DR. PIAGET, Jenny's uncle, who gives Dasein a sedative. In the morning, not quite convinced his accident was "accidental," Dasein meets Jenny and finds his feelings for her still running as high as ever.

As the day progresses, Dasein discovers that Santarogans are an almost brutally honest people. Al Marden, for instance, readily admits having read through the contents of his briefcase and CLARA SCHELER sells used cars by telling the truth about them! Nevertheless, there is one thing the townspeople seem to be evasive about: "Jaspers." Despite this reticence, however, Dasein is given a highly censored tour of the Jaspers Cooperative during which he meets

GEORGE NIS and Willa Burdeaux, who is engaged to Nis' son, Cal.

When he returns to the inn, Dasein discovers a "doorless" room which is used to monitor TV programs from outside the valley. After eavesdropping for awhile from the porch roof, he re-enters the building to reaffirm the fact that there is no apparent entrance to the "TV-room." In the hallway he has another "accident," tripping on the carpet in such a manner that he crashes through the stair rail and starts to fall headfirst to the ground floor. But at the last moment someone grabs Dasein by the ankles and pulls him back to safety. It is Win Burdeaux who just "happened" to be passing by. So, for the second time in as many days Dasein finds himself under treatment by Dr. Piaget. This time for a badly injured shoulder.

Shaken by the day's events, he decides to drive out of town in order to contact Dr. Selador, who suggests he find lodgings some place else and urges him to continue his investigation. On the way back to Santaroga, Dasein begins to hallucinate and is forced to pull his camper to the side of the road. With sudden clarity he realizes that the answer to everything can be summarized by one word: "Jaspers."

Convinced that he will solve the mystery of Santaroga if he can find his way into the Co-op unobserved, Dasein gets past the dog patrols and guards surrounding the area. He enters the Jaspers "factory" via a ventilator shaft which seems to penetrate deep into the earth, and finds himself in a cave lined with row upon row of lockers which contain food items which are labelled and dated as time of "exposure."

Lulled by the strong odor of Jaspers, Dasein is almost discovered by the guards. He flees from them and finds himself in a cul-de-sac where he almost passes out. However, after awhile a voice calls his name. It is Willa Burdeaux. She tells him he has overexposed himself to Jaspers and that he should leave as soon as possible. Dasein takes her advice. Escaping from the Co-op by means of a door she has left unlatched for him, he returns to the inn.

In his room he finds that Willa has left a bottle of "Jaspers" beer for him along with a note explaining that he will need it in the morning. On the bottle itself is a blue stamp which reads: EXPOSED January 1959.

The Jaspers are obviously the secret of the valley, and Dasein has now been overly exposed to them. Their affect is almost psychedelic in its mental aspects, as well as stimulating to his body so that his injuries heal faster. But, as the Jaspers begin to possess him, the feeling in the valley turns against him. The people still appear friendly enough, but the "accidents" come more quickly now. He has no place to stay and feels that everyone is in a conspiracy to run him out. After too many "accidents" even Jenny is involved. "Stay away from me. I love you," she warns—and flees. Now, still unconsciously, the valley is at war with him. Only his new-found alertness keeps him alive as attempt after attempt—all apparently accidental—is made on his life. He cannot escape them all. He is injured, badly, and taken to the hospital where he is given a drug. He fears that this is the end, that he will never awaken once he is unconscious and his guard is down. Blackness overwhelms him.

**D**ASEIN AWOKE remembering a dream—a conversation with faceless gods.

"Dunghills rise and castles fall." In the dream, something with an echo-box voice had said that. "*Dunghills rise and castles fall.*"

Dasein felt it important to remember all the dream. Yes. "I'm the man who woke up." That was what he'd tried to tell the faceless gods. "I'm the man who woke up."

The dream was a flowing pattern in his memory, a *process* that couldn't be separated from himself. It was full of pure deeds and anguish. There was a chronic frustration in it. He had tried to do something that was inherently impossible. What had he tried to do? It eluded him.

Dasein remembered the hand of darkness that had preceded the dream. He caught his breath and his eyes popped open. Daylight. He was in a bed in a green-walled room. Out a window at his left he could see a twisted red branch of madrona, oily green leaves, blue sky. He felt his body then: bandages and pain along his arms, bandages across his forehead and his right cheek. His throat felt dry and there was a sourness on his tongue.

Still, the dream clung to him. It was a disembodied *thing*. Disembodied. Death! That was a clue. He knew it. Dasein recalled Piaget speaking of "a common instinc-

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tive experience." What did instinct have to do with the dream? Instinct. Instinct. What was instinct? An innate pattern impressed on the nervous system. Death. Instinct.

"Look inward, look inward, oh Man, on thyself," the faceless gods of the dream had said. He recalled that now and felt like sneering.

It was the old know-thyself syndrome, the psychologist's disease. Inward, ever inward. The death instinct was in there with all the other instincts. Know thyself? Dasein sensed then he couldn't know himself without dying. Death was the background against which life could know itself.

A throat was cleared to Dasein's right.

He tensed, turned his head to look toward the sound.

Winston Burdeaux sat in a chair beside the door. The brown eyes staring out of Burdeaux's Moorish face held a quizzical expression.

*Why Burdeaux?* Dasein wondered.

"I'm happy to see you're awake, sir," Burdeaux said.

There was a soothing sense of companionship in the man's rumbling voice. Was that why Burdeaux had been brought in? Dasein wondered. Had Burdeaux been picked to soothe and lull the victim?

*But I'm still alive,* Dasein thought.

If they'd wanted to harm him, what better opportunity had presented itself? He'd been helpless, unconscious . . .

"What time is it?" Dasein asked. The movement of speaking hurt his burned cheek.

"It's almost ten o'clock of a beautiful morning," Burdeaux said. He smiled, a flash of white teeth in the dark features. "Is there anything you wish?"

At the question, Dasein's stomach knotted in a pang of hunger. He hesitated on the point of asking for breakfast. What might be in any food served here? he asked himself.

*Hunger is more than an empty stomach,* Dasein thought. *I can go without a meal.*

"What I wish," Dasein said, "is to know why you're here."

"The doctor thought I might be the safest one," Burdeaux said. "I, myself, was an outsider once. I can recall how it was."

"They tried to kill you, too?"

"Sir!"

"Well . . . did you have accidents?" Dasein asked.

"I do not share the doctor's opinion about . . . accidents," Burdeaux said. "Once . . . I thought—But I can see now how wrong I was. The people of this valley wish to harm no man."

"Yet, you're here because the doctor decided you'd be the *safest*," Dasein said. "And you haven't answered my question: Did you have accidents?"

"You must understand," Burdeaux said, "that when you don't know the ways of the valley, you can get into . . . situations which . . ."

"So you *did* have accidents. Is that why you asked for secret packages from Louisiana?"

"Secret packages?"

"Why else did you have them sent to Porterville?"

"Oh, you know about that." Burdeaux shook his head, chuckled. "Haven't you ever hungered for the foods of your childhood? I didn't think my new friends would understand."

"Is that what it was?" Dasein asked. "Or did you wake up one morning shaking with fear at what the Jaspers in the local food was doing to you?"

Burdeaux scowled, then: "Sir, when I first came here, I was an ignorant *nigger*. Now, I am an educated Negro . . . and a Santarogan. I no longer have the delusions which I . . ."

"So you *did* try to fight it!"

"Yes . . . I fought it. But I soon learned how foolish that was."

"A delusion."

"Indeed; a delusion."

*To remove a man's delusions, Dasein thought, is to create a vacuum. What rushes into that vacuum?*

"Let us say," Burdeaux said, "that I shared your delusions once."

"It's normal to share the de-

lusions of one's society," Dasein murmured, half to himself. "It's abnormal to develop private delusions."

"Well put," Burdeaux said.

Again, he wondered; *What rushes into the vacuum? What delusions do Santarogans share?*

For one thing, he knew they couldn't see the unconscious violence which created *accidents* for outsiders. Most of them couldn't see this, he corrected himself. There was a possibility Piaget was beginning to understand. After all, he'd put Burdeaux in here. And Jenny—"Stay away from me! I love you!"

Dasein began to see Santaroga in a new light. There was something decorously Roman about them . . . and Spartan. They were turned in upon themselves, unfriendly, insular, proud, cut off from exchange of ideas that might . . . He hesitated on this thought, wondering about the TV room at the inn.

"The room you tried to hide from me," Dasein said. "At the inn—the room with the television receivers . . ."

"We didn't really want to hide that from you," Burdeaux said. "In a way, we hide it from ourselves . . . and from chance outsiders. There's something very alluring about the sickness that's poured over TV. That's why we rotate the watchers. But we cannot ignore it. TV is the key to

the outside and its . . . gods."

"It's gods?" Dasein suddenly remembered his dream.

"They have very practical gods outside," Burdeaux said.

"What's a practical god?" Dasein asked.

"A practical god? That's a god who agrees with his worshippers. This is a way to keep from being conquered, you see."

Dasein turned away from Burdeaux to stare up at the green ceiling. *Conquer the gods?* Was that the dream's chronic frustration?

"I don't understand," he murmured.

"You still carry some of the outside's delusions," Burdeaux said. "Outside, they don't really try to understand the universe. Oh, they say they do, but that's not really what they're up to. You can tell by what they do. They're trying to conquer the universe. Gods are part of the universe . . . even man-made gods."

"If you can't beat 'em, join 'em," Dasein said. "To keep from being conquered, a practical god agrees with his attackers. Is that it?"

"You're just as perceptive as Jenny said you'd be," Burdeaux said.

"So outsiders attack their gods," Dasein said.

"Anything less than abject submission has to have some attack in it," Burdeaux said. "You try to change a god? What's that

except accusing the god of not agreeing with you?"

"And you get all this from the TV?"

"All this from . . ." Burdeaux broke into a chuckle. "Oh, no, Doctor Gil . . . You don't mind if I call you Doctor Gil?"

Dasein turned to stare at the questioning look on Burdeaux's face. *Doctor Gil.* To object would be to appear the stiff-necked fool. But Dasein felt that agreement would be a step backward, the loss of an important battle. He could see no way to object, though.

"Whatever you wish," Dasein said. "Just explain this about the TV."

"That's . . . our *window* on the outside," Burdeaux said. "That whole world of the permanent expediency out there, that whole world is TV. And we watch it through . . ."

"Permanent expediency?" Dasein tried to raise himself on his elbows, but the effort set his burned arms to throbbing. He sank back, kept his gaze on Burdeaux.

"Why, of course, sir. The outside works on the temporary expedient, Doctor Gil. You must know that. And the temporary always turns into the permanent, somehow. The temporary tax, the necessary *little* war, the temporary brutality that will cease as soon as certain conditions end . . . the government agency created



for the permanent *interim* . . .”

“So you watch the news broadcasts and get all this from . . .”

“More than the news, Doctor Gil. All of it, and our watchers write condensed reports that . . . You see, it’s all TV out there—life, everything. Outsiders, are spectators. They expect everything to happen to them and they don’t want to do more than turn a switch. They want to sit back and let life happen to them. They watch the late-late show and turn off their TVs. Then they go to bed to sleep—which is a form of turning themselves off just like TV. The trouble is, their late-late show is often later than they think. There’s a desperation in not being able to recognize this, Doctor Gil. Desperation leads to violence. There comes a morning for almost everyone of these poor people outside when they realize that life hasn’t happened to them no matter how much TV they’ve watched. Life hasn’t happened because they didn’t take part in it. They’ve never been onstage, never had anything real. It was all illusion . . . delusion.”

Dasein absorbed the intensity of the words, their meaning and what lay under them. There was a terrifying sense of truth in Burdeaux’s words.

“So they get turned off,” Dasein murmured.

“It’s all TV,” Burdeaux said.

Dasein turned his head, looked out the window.

“You really ought to eat something, Doctor Gil,” Burdeaux said.

“No.”

“Doctor Gil, you’re a wise man in some things, but in others . . .”

“Don’t call me wise,” Dasein said. “Call me experienced.”

“The food here is the very best,” Burdeaux said. “I’ll get it and serve you myself. You don’t have to fear a . . .”

“I’ve been burned enough times,” Dasein said.

“Fire won’t crack a full pot, Doctor Gil.”

“Win, I admire you and trust you. You saved my life. I don’t think you were supposed to, but you did. That’s why Doctor Piaget sent you in here. But an *accident* could happen—even with you.”

“You hurt me to say that, Doctor Gil. I’m not the kind feeds you with the corn and chokes you with the cob.”

Dasein sighed. He’d offended Burdeaux, but the alternative . . . It occurred to Dasein abruptly that he was sitting on a special kind of bomb. Santaroga had abated its attack on him, probably in part because of his present helplessness. But the community was capable of returning to the manufacture of *accidents* if and when he should ever want something not permitted here.

At the moment, Dasein wanted nothing more than to be far away from here. He wanted this desperately despite the certain

knowledge this desire must be on the proscribed list.

The door beside Burdeaux opened. A nurse backed into the room pulling a cart. She turned. Jenny!

Dasein ignored his burns, lifted himself on his elbows.

Jenny stared at him with an oddly pained expression. Her full lips were thrust out almost in a pout. The long black hair had been tied back in a neat bun. She wore a white uniform, white stockings, white shoes—no cap.

Dasein swallowed.

"Miss Jenny," Burdeaux said. "What do you have on the cart?"

She spoke without taking her gaze from Dasein. "Some food for this madman. I prepared it myself."

"I've been trying to get him to eat," Burdeaux said, "but he says no."

"Would you leave us for a while, Win?" she asked. "I want . . ."

"The doctor said I wasn't to let . . ."

"Win, please?" She turned toward him, pleading.

Burdeaux swallowed. "Well . . . since it's you . . ."

"Thank you, Win."

"Twenty minutes," Burdeaux said. "I'll be right out in the hall where you can call me if you need."

"Thank you, Win." She turned her attention back to Dasein.

Burdeaux left the room, closed the door softly.

Dasein said: "Jen, I . . ."

"Be quiet," she said. "You're not to waste your strength. Uncle Larry said . . ."

"I'm not eating here," Dasein said.

She stamped a foot. "Gil, you're being . . ."

"I'm being a fool," he said. "But the important thing is I'm alive."

"But look at you! Look at . . ."

"How's Harry Scheler?"

She hesitated, then: "He'll live. He'll have some scars, and for that matter so will you, but you . . ."

"Have they figured out what happened?"

"It was an accident."

"That's all? Just an accident?"

"They said something about the line from the fuel pump being broken . . . a bad electrical connection to one of the lights and . . ."

"An accident," Dasein said. "I see." He sank back into his pillow.

"I've prepared you some coddled eggs and toast and honey," Jenny said. "You've got to eat something to keep up . . ."

"No."

"Gil!"

"I said no."

"What're you afraid of?"

"Another accident."

"But I prepared this myself!"

He turned his head, stared at

her, spoke in a low voice: "Stay away from me. I love you."

"Gilbert!"

"You said it," he reminded her.

Her face paled. She leaned against the cart, trembling. "I know," she whispered. "Sometimes I can feel the . . ." She looked up, tears streaming down her face. "But I *do* love you. And you're hurt now. I want to take care of you. I *need* to take care of you. Look." She lifted the cover from one of the dishes on the cart, spooned a bite of food into her mouth.

"Jenny," Dasein whispered. The look of hurt on her face, the intensity of his love for her—he wanted to take her in his arms and . . .

A wide-eyed look came over Jenny's face. She reached both hands to her throat. Her mouth worked, but no sound came forth.

She shook her head, eyes staring wildly.

Dasein threw back the covers of his bed, winced as movement increased the pain along his arms. He ignored the pain, slid his feet out to a cold tile floor, straightened. A wave of dizziness gripped him.

Jenny, hands still at her throat, backed toward the door.

Dasein started toward her, hospital nightshirt flopping around his knees. He found movement difficult, his knees rubbery.

Abruptly, Jenny slumped to the floor.

Dasein remembered Burdeaux, shouted: "Help! Win! Help!"

He staggered, clutched the edge of the cart. It started to roll.

Dasein found himself sitting helplessly on the floor as the door burst open. Burdeaux stood there glaring at him, looked down at Jenny who lay with her eyes closed, knees drawn up, gasping.

"Call the doctor," Dasein huskied. "Something in the food. She ate some . . ."

Burdeaux took one quick breath of awareness, whirled away down the hall, leaving the door open.

Dasein started to crawl toward Jenny. The room wavered and twisted around him. His arms throbbed. There was a whistle in Jenny's gasping breaths that made him want to dash to her, but he couldn't find the strength. He had covered only a few feet when Piaget rushed in with Burdeaux right behind.

Piaget, his round face a pale blank mask, knelt beside Jenny, motioned toward Dasein, said: "Get him back in bed."

"The food on the cart," Dasein rasped. "She ate something."

A blonde nurse in a stiff white cap wheeled an emergency cart in the door, bent over Piaget's shoulder. They were cut from Dasein's view as Burdeaux scooped him up, deposited him on the bed.

"You stay there, Doctor Gil," Burdeaux said. He turned, stared

at the bustling action by the door.

"Allergenic reaction," Piaget said. "Thrat's closing. Give me a double tube; we'll have to pump her."

The nurse handed something to Piaget, who worked over Jenny, his back obscuring his actions.

"Atropine," Piaget said.

Again, he took something from the nurse.

Dasein found it difficult to focus on the scene. Fear tightened his throat. *Why am I so weak?* he wondered. Then: *Dear god, she can't die. Please save her.*

Faces of more hospital personnel appeared at the door, wide-eyed, silent.

Piaget glanced up, said: "Get a gurney."

Some of the faces went away. Presently, there was a sound of wheels in the corridor.

Piaget stood up, said: "That's as much as I can do here. Get her on the gurney—head lower than her feet." He turned to Dasein. "What'd she eat?"

"She took . . ." Dasein pointed to the food cart. "Whatever it is, she took the cover off. Eggs?"

Piaget took one stride to the cart, grabbed up a dish, sniffed at it. His movement opened the view to the door for Dasein. Two orderlies and a nurse were lifting Jenny there, carrying her out the door. There was one glimpse of her pale face with a tube dangling from the corner of her mouth.



"Was it a poison?" Burdeaux asked, his voice hushed.

"Of course it was a poison!" Piaget snapped. "Acts like aconite." He turned with the dish, rushed out.

Dasein listened to the sound of the wheels and swift footsteps receding down the hall until Burdeaux closed the door, shutting out the sound.

His body bathed in perspiration, Dasein lay unresisting while Burdeaux eased him under the blankets.

"For one moment there," Burdeaux said, "I . . . I thought you'd hurt Jenny."

*She can't die*, Dasein thought.

"I'm sorry," Burdeaux said. "I know you wouldn't hurt her."

"She can't die," Dasein whispered.

He looked up to see tears draw glistening tracks down Burdeaux's dark cheeks. The tears ignited an odd anger reaction in Dasein. He was aware of the anger swelling in him, but unable to stop it. Rage! It was directed not at Burdeaux, but at the disembodied essence of Santaroga, at the collective *thing* which had tried to use the woman he loved to kill him. He glared at Burdeaux.

"Doctor Larry won't let anything happen to Jenny," Burdeaux said. "He'll . . ."

Burdeaux saw the expression in Dasein's eyes, instinctively backed away.

"Get out of here!" Dasein said.

"But the doctor said I was to . . ."

"Doctor Gil says you get the hell out of here!"

Burdeaux's face took on a stubborn set. "I'm not to leave you alone."

Dasein sank back. What could he do?"

"You had a very bad shock reaction last night," Burdeaux said. "They had to give you blood. You're not to be left alone."

*They gave me a transfusion?* Dasein wondered. *Why didn't they kill me then? They were saving me for Jenny!*

"You all care so much for Jenny," Dasein said. "You'd let her kill me. It'd destroy her, but that doesn't make any difference, does it? Sacrifice Jenny, that's your verdict, you pack of . . ."

"You're talking crazy, Doctor Gil."

As quickly as it had come, the anger left Dasein. Why attack poor Win? Why attack any of them? They couldn't see the monkey on their back. He felt deflated. Of course this was crazy to Burdeaux. One society's reason was another's unreason.

Dasein cursed the weakness that had seized his body.

*Bad shock reaction.*

He wondered then what he would do if Jenny died. It was a curiously fragmented feeling—part of him wailing in grief at the thought, another part raging at

the fate which had shunted him into this corner . . . and part of him forever analyzing, analyzing . . .

How much of the shock had been a Jaspers reaction? Had he become sensitized the way Santarogans were?

*They'll kill me out of hand if Jenny dies*, he thought.

Burdeaux said: "I'll just sit here by the door. You be sure to tell me if you need anything."

He sat down facing Dasein, folded his arms—for all the world like a guard.

Dasein closed his eyes, thought: *Jenny, please don't die*. He recalled Piaget telling how Harry Scheler had known of his brother's death.

An empty place.

*Where do I sense Jenny?* Dasein asked himself.

It bothered him that he couldn't probe within himself somewhere and be reassured by Jenny's presence. That kind of reassurance was worth any price. She had to be there. It was a thing any Santarogan could do.

*But I'm not a Santarogan.*

Dasein felt that he teetered on the razor's edge. One side held the vast unconscious sea of the human world into which he had been born. On the other side—there, it was like the green waters of a lake—serene, contained, every droplet knowing its neighbors.

He heard a door open, felt a storm begin in the unconscious

sea, sensed a breeze stirring the surface of the lake. The sensation of balancing receded. Dasein opened his eyes.

Piaget stood in the middle of the room. He wore a stethoscope around his neck. There was a feeling of fatigue around his eyes. He studied Dasein with a puzzled frown.

"Jenny?" Dasein whispered.

"She'll live," Piaget said. "But it was close."

Dasein closed his eyes took a deep breath. "How many more accidents like that can we take?" he asked. He opened his eyes, met Piaget's gaze.

Burdeaux came up beside Piaget, said: "He's been talking crazy, Doctor Larry."

"Win, would you leave us for a bit?" Piaget asked.

"You sure?" Burdeaux scowled at Dasein.

"Please," Piaget said. He pulled up a chair, sat down beside the bed and facing Dasein.

"I'll be right outside," Burdeaux said. He went out, closed the door.

"You've upset Win and that's rather difficult to do," Piaget said.

"Upset . . ." Dasein stared at him, speechless. Then: "Is that your summation of what's happened?"

Piaget looked down at his own right hand, made a fist, opened it. He shook his head. "I didn't mean to sound flippant, Gilbert.

I . . .” He looked up at Dasein. “There must be some reasonable, rational explanation.”

“You don’t think the word *accident* explains all this?”

“An accident prone . . .”

“We both know there’s no such thing as an accident prone in the popular sense of that label,” Dasein said.

Piaget steeped his hands in front of him, leaned back. He prused his lips, then: “Well, in the psychiatric view . . .”

“Come off that!” Dasein barked. “You’re going to fall back on the old cliché about ‘a neurotic tendency to inflict self injury’, a defect in ego-control. Where did I have any control over the work on that bridge? Or the boy with the bow and arrow or . . .”

“Boy with a bow and arrow?”

Dasein thought to hell with his promise, told about the incident at the park, added: “And what about the garage hoist or the fire? For that matter, what about the poison in the food Jenny . . . Jenny, of all people! the food that she . . .”

“All right! You have ground to . . .”

“Grounds? I’ve an entire syndrome laid out in front of me. Santaroga is trying to kill me. You’ve already killed an apparently inoffensive young man. You’ve almost killed Jenny. What next?”

“In heaven’s name, why would we . . .”

“To eliminate a threat. Isn’t that obvious? I’m a threat.”

“Oh, now really . . .”

“Now, really! Or is it perfectly all right if I take Jenny out of this crazy valley and blow the whistle on you?”

“Jenny won’t leave her . . .” He paused. “Blow the whistle? What do you mean?”

“Now, who’s making the angels weep?” Dasein asked. “You protest that you love Jenny and won’t have her hurt. What more terrible thing is there than to have her be the instrument of my death?”

Piaget paled, drew two ragged breaths. “She . . . there must be . . . What do you mean blow the whistle?”

“Has a labor department inspector ever looked into the child labor situation out at your *school*?” Dasein asked. “What about the state department of mental hygiene? Your records say no mental illness from Santaroga.”

“Gilbert, you don’t know what you’re talking about.”

“Don’t I? What about the anti-government propaganda in your newspaper?”

“We’re not anti-government, Gilbert, we’re . . .”

“What? Why, I’ve never seen such a . . .”

“Allow me to finish, please. We’re not anti-government; we’re anti-*outside*. That’s a cat of quite a different calico.”

"You think they're all . . . insane?"

"We think they're all going to eat themselves up."

*Madness, madness, Dasein* thought. He stared at the ceiling. Perspiration bathed his body. The intensity of emotion he'd put into the argument with Piaget . . .

"Why did you send Burdeaux to watch over me?" Dasein asked.

Piaget shrugged. "I . . . to guard against the possibility you might be right in your . . ."

"And you picked Burdeaux." Dasein turned his eyes toward Piaget, studied the man. Piaget appeared to be warring with himself, nervously clenching and unclenching his fists.

"The reasons should be obvious," he said.

"You can't let me leave the valley, can you?" Dasein asked.

"You're in no physical condition to . . ."

"Will I ever be?"

Piaget met Dasein's gaze. "How can I prove to you what we really . . ."

"Is there any place here where I can protect myself from accidents?" Dasein asked.

"Protect yourself from . . ."

Piaget shook his head.

"You want to prove your honorable intentions," Dasein said.

Piaget pursed his lips, then: "There's an isolation suite, a penthouse on the roof—its own kitchen facilities, everything. If you . . ."

"Could Burdeaux get me up there without killing me?"

Piaget sighed. "I'll take you up there myself as soon as I can get a . . ."

"Burdeaux."

"As you wish. You can be moved in a wheelchair."

"I'll walk."

"You're not strong enough to . . ."

"I'll find the strength. Burdeaux can help me."

"Very well. As to food, we can . . ."

"I'll eat out of cans picked at random from a market's shelves. Burdeaux can shop for me until I'm . . ."

"Now, see here . . ."

"That's the way it's going to be, doctor. He'll get me a broad selection, and I'll choose at random from that selection."

"You're taking unnecessary . . ."

"Let's give it a try and see how many accidents develop."

Piaget stared at him a moment, then: "As you wish."

"What about Jenny? When can I see her?"

"She's had a severe shock to her system and some intestinal trauma. I'd say she shouldn't have visitors for several days unless they . . ."

"I'm not leaving that isolation suite until I've convinced you," Dasein said. "When can she come to see me?"

"It'll be several days." He



pointed a finger at Dasein. "Now, see here, Gilbert—you're not going to take Jenny out of the valley. She'll never consent to . . ."

"Let's let Jenny decide that."

"Very well." Piaget nodded. "You'll see." He went to the door, opened it. "Win?"

Burdeaux stepped past Piaget into the room. "Is he still talking crazy, Doctor Larry?"

"We're going to conduct an experiment, Win," Piaget said. "For reasons of Dr. Dasein's health and Jenny's happiness, we're going to move him to the isolation suite." Piaget jerked a thumb toward the ceiling. "He wants you to move him."

"I'll get a wheelchair," Burdeaux said.

"Dr. Dasein wants to try walking," Piaget said.

"Can he do that?" Burdeaux turned a puzzled frown on Dasein. "He was too weak to stand just a little . . ."

"Dr. Dasein appears to be relying on your strength," Piaget said. "Think you can manage?"

"I could carry him," Burdeaux said, "but that seems like a . . ."

"Treat him with the same care you'd treat a helpless infant," Piaget said.

"If you say so, Doctor Larry."

Burdeaux crossed to the bed, helped Dasein to sit on the edge of the bed. The effort set Dasein's head to whirling. In the fuzzy tipping and turning of the

room, he saw Piaget go to the door, open it and stand there looking at Burdeaux.

"I'll take my evil influence elsewhere for the time being," Piaget said. "You don't mind, do you Gilbert, if I look in on you shortly—purely in a medical capacity?"

"As long as I have the final say on what you do to me," Dasein said.

"It's only fair to warn you your bandages have to be changed," Piaget said.

"Can win do it?"

"Your trust in Win is very touching," Piaget said. "I'm sure he's impressed."

"Can Win do it?"

"Yes, I'm certain he can—with my instruction."

"All right then," Dasein said.

With Burdeaux's help, Dasein struggled to his feet. He stood there panting, leaning on Burdeaux. Piaget went out, leaving the door open.

"You sure you can manage, sir?" Burdeaux asked.

Dasein tried to take a step. His knees were two sections of flexing rubber. He would have fallen had it not been for Burdeaux's support.

"Do we go by elevator?" Dasein asked.

"Yes, sir. It's right across the hall."

"Let's get on with it."

"Yes, sir. Excuse me, sir." Burdeaux bent, lifted Dasein in his

arms, turned to slip through the door.

Dasein glimpsed the startled face of a nurse walking down the hall. He felt foolish, helpless—stubborn. The nurse frowned, glanced at Burdeaux, who ignored her, punched the elevator button with an elbow. The nurse strode off down the hall, heels clicking.

Elevator doors slid open with a hiss.

Burdeaux carried him inside, elbowed a button marked "P".

Dasein felt his mouth go dry as the elevator doors closed. He stared up at a cream ceiling, a milky oblong of light, thinking: *"They didn't hesitate to sacrifice Jenny. Why would they have a second thought about Burdeaux? What if the elevator's rigged to crash?"*

A faint humming sounded. Dasein felt the elevator lift. Presently the doors opened and Burdeaux carried him out. There was a glimpse of a cream-walled entrance foyer, a mahogany door labeled "Isolation," and they were inside.

It was a long room with three beds, windows opening onto a black tar roof. Burdeaux deposited Dasein on the nearest bed, stepped back. "Kitchen's in there," he said, pointing to a swinging door at the end of the room. "Bathroom's through that door there." This was a door opposite the foot of Dasein's bed. There were two more doors to the right of this

one. "Other doors are a closet and a lab. Is this what you wanted, Doctor Gil?"

Dasein met a measuring stare in Burdeaux's eyes, said: "It'll have to do." He managed a rueful smile, explained the eating arrangements.

"Canned food, sir?" Burdeaux asked.

"I'm imposing on you, I know," Dasein said. "But you were . . . like me . . . once. I think you sympathize with me . . . unconsciously. I'm counting on that to . . ." Dasein managed a weak shrug.

"Is this what Doctor Larry wants me to do?"

"Yes."

"I just pick cans from the shelves . . . at random?"

"That's right."

"Well, it sounds crazy, sir . . . but I'll do it." He left the room.

Dasein managed to crawl under the blankets, lay for a moment regaining his strength. He could see a line of treetops beyond the roof—tall evergreens—a cloudless blue sky. There was a sense of quiet about the room. Dasein took a deep breath. Was this place really safe? A Santarogan had picked it. But the Santarogan had been off balance with personal doubts.

For the first time in days, Dasein felt he might relax. A profound lassitude filled him.

*What is this unnatural weakness?* he wondered.

It was far more than shock reaction or a result of his burns. This was like an injury to the soul, something that involved the entire being. It was a central command to all his muscles, a compulsion of inactivity.

Dasein closed his eyes.

In the red darkness behind his eyelids Dasein felt himself to be shattered, his ego huddled in a fetal crouch, terrified. One must not move, he thought. To move was to invite a disaster more terrible than death.

An uncontrollable shuddering shook his legs and hips, set his teeth chattering. He fought himself to stillness, opened his eyes to stare at the ceiling.

*It's a Jaspers reaction*, he thought.

There was a smell of it in the room. The aroma gnawed at his senses. He sniffed, turned toward a metal stand beside the bed, a partly opened drawer. Dasein slid the door all the way out to a stop, rolled onto his side to peer at the space he'd exposed.

Empty.

But there'd been a Jaspers *something* in the drawer—and that recently.

What?

Dasein swept his gaze around the room. Isolation suite, Piaget had said. Isolation of what? From what? For what?

He swallowed, sank back on the pillow.

The deliciously terrifying lassitude gripped him. Dasein sensed the green waters of unconsciousness ready to enfold him. By a desperate effort of will, he forced his eyes to remain open.

Somewhere, a cowering, fetal *something* moaned.

Faceless gods chuckled.

The entrance door opened.

Dasein held himself rigidly unmoving, afraid if he moved his head to one side his face might sing beneath the upsurging unconsciousness, that he might drown in . . .

Piaget came into his field of vision, peering down at him.

"Darned if you aren't still fighting it," he said.

"Fighting what?" Dasein whispered.

"I was pretty sure it'd knock you out if you used that much energy at this stage," Piaget said. "You're going to have to eat before long, you know."

Dasein was aware then of the pain—a demanding hollow within him. He held onto the pain. It helped fight off the enfolding green waves.

"Tell you what," Piaget said. He moved from Dasein's range of vision. There came a scraping, a grunt. "I'll just sit here and keep watch on you until Win gets back with something you'll stuff into that crazy face of yours. I won't lay a hand on you and I won't let anyone else touch you. Your ban-

dages can wait. More important for you to rest—sleep if you can. Stop fighting it.”

Sleep! Gods, how the lassitude beckoned.

*Fighting what?*

He tried to frame the question once more, couldn't find the energy. It took all of his effort merely to cling to a tiny glowing core of awareness that stared up at a cream-colored ceiling.

“What you're fighting,” Piaget said in a conversational tone, “is the climb out of the morass. Mud clings to one. This is what leads me to suspect your theory may have a germ of truth in it—that some stain of violence still clings to us, reaching us on the blind side, as it were.”

Piaget's voice was an hypnotic drone. Phrases threaded their way in and out of Dasein's awareness.

“... experiment in domestication . . .” “... removed from ex-stasis, from a fixed condition . . .” “... must reimprint the sense of identity . . .” “... nothing new: mankind's always in some sort of trouble . . .” “... religious experience of a sort—creating a new order of theobotanists . . .” “... don't shrink from life or from awareness of life . . .” “... seek a society that changes smoothly, flowingly as the collective need requires . . .”

One of the faceless gods produced a thundering whisper in

Dasein's skull: “*This is my commandment given unto you: A poor man cannot afford principles and a rich man doesn't need them.*”

Dasein lay suspended in a hammock of silence.

Fear of movement dominated him.

He sensed a world-presence somewhere beneath him. But he lay stranded here above. Something beckoned. Familiar. He felt the familiar world and was repelled. The place seethed with disguises that tried to conceal a rubble of pretensions, devices, broken masks. Still, it beckoned. It was a place in which he could fit, shaped to him. He sensed himself reaching toward it with a feeling of exuberant self-gratification, drew back. The rubble. It was everywhere, a blanket over life, a creamy ennui—soothing, cajoling, saccharine.

Still, it beckoned.

The lure was inexhaustible, a brilliant bag of pyrotechnics, a palette flooded with gross colors.

It was all a trick.

He sensed this — all a trick, a mass of signal cliches and canned reflexes.

It was a hateful world.

*Which world?* he asked himself. *Was it Santaroga . . . or the outside?*

Something grabbed Dasein's shoulder.

He screamed.

Dasein awoke to find himself

moaning, mumbling. It took a moment to place himself. Where were the faceless gods?

Piaget leaned over him, a hand on Dasein's shoulder.

"You were having a nightmare," Piaget said. He took his hand away. "Win's back with the food — such as it is."

Dasein's stomach knotted in pain.

Burdeaux stood at his right next to the adjoining bed. A box piled with canned food rested on the next bed.

"Bring me a can opener and a spoon," Dasein said.

"Just tell me what you want and I'll open it," Burdeaux said.

"I'll do it," Dasein said. He raised himself on his elbows. Movement set his arms to throbbing, but he felt stronger — as though he had tapped a strength of desperation.

"Humor him," Piaget said as Burdeaux hesitated.

Burdeaux shrugged, went out the door across from the bed.

Dasein threw back the blankets, swung his feet out. He motioned Piaget back, sat up. His feet touched a cold floor. He took a deep breath, lurched across to the adjoining bed. His knees felt stronger, but Dasein sensed the shallowness of his reserves.

Burdeaux reappeared, handed Dasein a twist-handle can opener.

Dasein sat down beside the box, grabbed a fat green can out of it, not even looking at the

label. He worked the opener around the can, took a proffered spoon from Burdeaux, lifted back the lid.

Beans.

An odor of Jaspers clamored at Dasein from the open can. He looked at the label: "Packed by the Jaspers Cooperative." There was a permit number, a date of a year ago and the admonition: "Not for sale in interstate commerce. Exposed Dec. '64."

Dasein stared at the can. *Jaspers?* It couldn't be. The stuff didn't ship. It couldn't be preserved out of . . .

"Something wrong?" Piaget asked.

Dasein studied the can: shiny, a glistening label.

"Beans with meat sauce and beef," read the yellow letters.

Dasein ignored the lure of the aroma from the can, looked in the box. He tried to remember whether the can had given off the characteristic hiss of a vacuum seal breaking as it had been opened — couldn't remember.

"What's wrong?" Piaget insisted.

"Can't be anything wrong," Burdeaux said. "That's all private stock."

Dasein looked up from the box. All the cans he could see bore the Co-op's label. *Private stock?*

"Here," Piaget said. He took can and spoon from Dasein's hands, tasted a bite of beans, smiled. He returned the can and

spoon to Dasein, who took them automatically.

"Nothing wrong there," Piaget said.

"Better not be," Burdeaux said. "It came from Pete Maja's store, right off the private stock shelf."

"It's Jaspers," Dasein rasped.

"Of course it is," Piaget said. "Canned right here for local consumption. Stored here to preserve its strength. Won't keep long after it's opened, though, so you'd better start eating. Got maybe five, ten minutes." He chuckled. "Be thankful you're here. If you were *outside* and opened that can, wouldn't last more'n a few seconds."

"Why?"

"Hostile environment," Piaget said. "Go ahead and eat. You saw me take some. Didn't hurt me."

Dasein tested a bit of the sauce on his tongue. A soothing sensation spread across his tongue, down his throat. They were delicious. He spooned a full bite into his mouth, gulped it down.

The Jaspers went thump in his stomach.

Dasein turned, wide-eyed toward Burdeaux, met a look of wonder, dark brown eyes like African charms with butter yellow flecks in them. The can drew Dasein's attention. He peered in to it.

Empty.

Dasein experienced a sensation of strange recall — like the fast

rewind on a tape recorder, a screech of memory: his hand in a piston movement spooning the contents of the can into his mouth. Blurred gulplings.

He recognized the *thump* now. It had been a thump of awareness. He no longer was hungry.

*My body did it*, Dasein thought. A sense of wonder enfolded him. *My body did it*.

Piaget took the can and spoon from Dasein's unresisting fingers. Burdeaux helped Dasein back into bed, pulled the blankets up, straightened them.

*My body did it*, Dasein thought.

There'd been a trigger to action — knowledge that the Jaspers effect was fading . . . and consciousness had blanked out.

"There," Piaget said.

"What about his bandages?" Burdeaux asked.

Piaget examined the bandage on Dasein's cheek, bent close to sniff, drew back. "Perhaps this evening," he said.

"You've trapped me, haven't you?" Dasein asked. He stared up at Piaget.

"There he goes again," Burdeaux said.

"Win," Piaget said, "I know you have personal matters to take care of. Why don't you tend to them now and leave me with Gilbert? You can come back around six if you would."

Burdeaux said: "I could call Willa and have her . . ."

"No need to bother your daugh-

ter," Piaget said. "Run along and . . ."

"But what if . . ."

"There's no danger," Piaget said.

"If you say so," Burdeaux said. He moved toward the foyer door, paused there a moment to study Dasein, then went out.

"What didn't you want Win to hear?" Dasein asked.

"There he goes again," Piaget said, echoing Burdeaux.

"Something must've . . ."

"There's nothing Win couldn't hear!"

"Yet you sent him to watch over me . . . because he was special," Dasein said. He took a deep breath, feeling his senses clear, his mind come alert. "Win was . . . *safe* for me."

"Win has his own life to live and you're interfering," Piaget said. "He . . ."

"Why was Win *safe*?"

"It's your feeling, not mine," Piaget said. "Win saved you from falling. You've shown a definite empathy . . ."

"He came from *outside*," Dasein said. "He was like me . . . once."

"Many of us came from outside," Piaget said.

"You, too?"

"No, but . . ."

"How does the trap really work?" Dasein asked.

"There is *no* trap!"

"What does the Jaspers do to one?" Dasein asked.

"Ask yourself that question."

"Technically . . . doctor?"

"Technically?"

"What does the Jaspers do?"

"Oh. Among other things, it speeds up catalysis of the chemical transmitters in the nervous system — 5 hydroxytryptamine and cerotonin."

"Changes in the golgi cells?"

"Absolutely not. Its effect is to break down blockage systems, to open the mind's image function and consciousness formulation processes. You *feel* as though you had a better . . . an *improved* memory. Not true, of course, except in effect. Merely a side effect of the speed with which . . ."

"Image function," Dasein said. "What if the person isn't capable of dealing with all his memories? There are extremely disagreeable, shameful . . . dangerously traumatic memories in some . . ."

"We have our failures."

"Dangerous failures?"

"Sometimes."

Dasein closed his mouth, an instinctive reaction. He drew in a deep breath through his nostrils. The odor of Jaspers assailed his senses. He looked toward the box of cans on the adjacent bed.

Jaspers. Consciousness fuel. Dangerous substance. Drug of ill omen. Speculative fantasies flitted through Dasein's mind. He turned, surprised a mooning look on Piaget's face.

"You can't get away from it here in the valley, can you?"

Dasein asked Piaget abruptly.

"Who'd want to?"

"You're hoping I'll stay, perhaps help you with your failures."

"There's certainly work to be done."

Anger seized Dasein. "How can I think?" he demanded. "I can't get away from the smell of . . ."

"Easy," Piaget murmured. "Take it easy, now. You'll get so you don't even notice it."

*Every society has its own essential chemistry, Dasein thought. Its own aroma, a thing of profound importance, but least apparent to its own members.*

Santaroga had tried to kill him, Dasein knew. He wondered now if it could have been because he had a different smell. He stared at the box on the bed. Impossible! It couldn't be anything that close to the surface.

Piaget moved around to the box, tore a small, curling strip of paper from it, touched the paper to his tongue. "This box has been down in storage," he said. "It's paper, organic matter. Anything organic becomes impregnated with Jaspers after a certain exposure." He tossed the paper into the box.

"Will I be like that box?" Dasein asked. He felt he had a ghost at his heels, an essence he couldn't elude. The lurking pres-

ence stirred in his mind. "Will I . . ."

"Put such thoughts out of your mind," Piaget said.

"Will I be one of the failures?" Dasein asked.

"I said stop that!"

"Why should I?"

Dasein sat up, the strength of fear and anger in him, his mind crowded by suppositions, each one worse than its predecessor. He felt more exposed and vulnerable than a child running from a whipping.

With an abrupt shock of memory, Dasein fell back to the pillow. *Why did I choose this moment to remember that?* he asked himself. A painful incident from his childhood lay there, exposed to awareness. He remembered the pain of the switch on his back.

"You're not the failure type," Piaget said.

Dasein stared accusingly at the odorous box.

*Jaspers!*

"You're the kind can go very high," Piaget said. "Why do you really think you're here? Just because of that silly market report? Or because of Jenny? Ah, no. Nothing that isolated or simple. Santaroga calls out to some people. They come."

Dasein looked sidelong at him.

"I came so you people could get the chance to kill me." Dasein said.

"We don't want to kill you!"

"One moment you suspect I



may be right, the next you're denying it."

Piaget sighed.

"I have a suggestion," Dasein said.

"Anything."

"You won't like it," Dasein said.

Piaget glared at him. "What's on your mind?"

"You'll be afraid to do it."

"I'm not . . ."

"It's something like a clinical test," Dasein said. "My guess is you'll try not to do it. You'll look for excuses, anything to get out of it or to discontinue it. You'll try to misunderstand me. You'll try to break away from . . ."

"For the love of heaven! What's on your mind?"

"You may succeed."

"Succeed in what?"

"Not doing what I suggest."

"Don't try to crowd me into a corner, Gilbert."

"Thus it starts," Dasein said. He held up a hand as Piaget made as though to speak. "I want you to let me hypnotize you."

"What?"

"You heard me."

"Why?"

"You're a native," Dasein said, "thoroughly conditioned to this . . . consciousness fuel. I want to see what's under there, what kind of fears you . . ."

"Of all the crazy . . ."

"I'm not some amateur meddler asking to do this," Dasein

said. "I'm a clinical psychologist well versed in hypnotherapy."

"But what could you possibly hope to . . ."

"What a man fears," Dasein said. "His fears are like a 'homing beacon'. Home in on a man's fears and you find his underlying motivations. Under every fear, there's a violence of no mean . . ."

"Nonsense! I have no . . ."

"You're a medical man. You know better than that."

Piaget stared at him, silently measuring. Presently, he said: "Well, every man has a death fear, of course. And . . ."

"More than that."

"You think you're some kind of god, Gilbert? You just go around . . ."

"Doth the eagle mount up at thy command, and make her nest on high?" Dasein asked. He shook his head. "What do you worship?"

"Oh . . . religion." Piaget took a deep breath of relief. "Thou shalt not be afraid for the terror by night; nor for the arrow that flieth by day; nor for the pestilence that walketh in darkness; nor for the destruction that wasteth at noonday. Is that it? What do . . ."

"That is *not* it."

"Gilbert, I'm not ignorant of these matters, as you must realize. To stir up the areas you're suggesting . . ."

"What would I stir up?"

"We both know that cannot be predicated with any accuracy."

"You're doing things as a community . . . a group, a society that you don't want me digging into," Dasein said. "What does that society really worship? With one hand, you say: 'Look anywhere you like.' With the other hand, you slam doors. In every action of . . ."

"You really believe some of us tried to . . . kill you . . . for the community?"

"Don't you?"

"Couldn't there be some other explanation?"

"What?"

Dasein held a steady gaze on Piaget. The doctor was disturbed, no doubt of that. He refused to meet Dasein's eyes. He moved his hands about aimlessly. His breathing had quickened.

"Societies don't believe they can die," Piaget said. "It must follow that a society, as such, does not worship at all. If it cannot die, it'll never face a final judgment."

"And if it'll never face judgment," Dasein said, "it can do things as a society that'd be too much for an individual to stomach."

"Perhaps," Piaget muttered. "Perhaps." Then: "All right, then. Why examine me? I've never tried to harm you."

Dasein looked away, taken aback by the question. Out the window he could see through a

frame of trees a stretch of the hills which enclosed Santaroga. He felt himself enclosed by that line of hills, entangled here in a web of meanings.

"What about the people who *have* tried to kill me?" Dasein asked shortly. "Would they be fit subjects?"

"The boy, perhaps," Piaget said. "I'll have to examine him anyway."

"Petey, the Jorick boy," Dasein said. "A failure, eh?"

"I think not."

"Another *opening person* . . . like me?"

"You remember that?"

"Then, you said societies die, that you'd cut yourselves off here . . . with Jaspers."

"We had a speaking then, too, as I recall it," Piaget said. "Have you really opened now? Are you seeing? Have you become?"

Dasein abruptly remembered Jenny's voice on the telephone: "Be careful." And the fear when she'd said: "They want you to leave."

In this instant, Piaget became for him once more the gray cat in the garden, silencing the birds, and Dasein knew himself to be alone yet, without a group. He remembered the lake, the perception of perception — knowing his own body, that communal knowledge of mood, that sharing.

Every conversation he'd had with Piaget came back to Dasein then to be weighed and balanced.

He felt his Santaroga experiences had been building — one moment upon another — to this instant.

"I'll get you some more Jaspers," Piaget said. "Perhaps then . . ."

"You suspect I'm fluttery behind the eyes?" Dasein asked.

Piaget smiled. "Sarah clings to the phrases of the past," he said, "before we systematized our dealings with Jaspers . . . and with the outside. But don't laugh at her or her phrases. She has the innocent eye."

"Which I haven't."

"You still have some of the assumptions and prejudices of the not-men," Piaget said.

"And I've heard too much, learned too much about you, ever to be allowed to leave," Dasein said.

"Won't you even try to become?" Piaget asked.

"Become what?" Piaget's crazy, almost-schizophrenic talk enraged him. *A speaking! A seeing!*

"Only you know that," Piaget said.

"Know what?"

Piaget merely stared at him.

"I'll tell you what I know," Dasein said. "I know you're terrified by my suggestion. You don't want to find out how Vina's roach powder got into the coffee. You don't want to know how Clara Scheler poisoned her stew. You don't want to know what prompted someone to push me off a

float. You don't want to know why a fifteen-year-old boy would try to put an arrow through me. You don't want to know how Jenny poisoned the eggs. You don't want to know how a car was set up to crush me, or how my truck was rigged as a fire bomb. You don't want to . . ."

"All right!"

Piaget rubbed his chin, turned away.

"I told you you might succeed," Dasein said.

"*Iti vuccati*," Piaget murmured. "Thus it is said: Every system and every interpretation becomes false in the light of a more complete system. I wonder if that's why you're here — to remind us no positive statement may be made that's free from contradictions."

He turned, stared at Dasein.

"What're you talking about?"

Dasein asked. Piaget's tone and manner carried a suddenly disturbing calmness.

"The inner enlightenment of all beings dwells in the self," Piaget said. "The self which cannot be isolated abides in the memory as a perception of symbols. We are conscious as a projection of self upon the receptive content of the senses. But it happens the self can be led astray—the self of a person or the self of a community. I wonder . . ."

"Stop trying to distract me with gobbledygook," Dasein said.

"You're trying to change the subject, avoid . . ."

"A . . . void," Piaget said. "Ah, yes. The void is very pertinent to this. Einstein cannot be confined to mathematics. All phenomenal existence is transitory, relative. No particular thing is real. It is passing into something else at every moment."

Dasein pushed himself upright in the bed. Had the old doctor gone crazy?

"Performance alone doesn't produce the result," Piaget said. "You're grasping at absolutes. To seek any fixed thing, however, is to deal in false imagination. You're trying to strain soap from the water with your fingers. Duality is a delusion."

Dasein shook his head from side to side. The man was making no sense at all.

"I see you are confused," Piaget said. "You don't really understand your own intellectual energy. You walk on narrow paths. I offer you new orbits of . . ."

"You can stop that," Dasein said. He remembered the lake then, the husky feminine voice saying: "*There's only one thing to do.*" And Jenny: "*We're doing it.*"

"You must adapt to conditional thought," Piaget said. "In that way, you'll be able to understand relative self-existence and express the relative truth of whatever you perceive. You have the

ability to do it. I can see that. Your insight into the violent actions which surround . . ."

"Whatever you're doing to me, you won't stop it, will you?" Dasein asked. "You keep pushing and pushing and . . ."

"Who pushes?" Piaget asked. "Are you not the one exerting the greatest . . ."

"Damn you! Stop it!"

Piaget looked at him silently.

"Einstein," Dasein muttered.

"Relativity . . . absolutes . . . intellectual energy . . . phenomenal . . ." He broke off as his mind lurched momentarily into a speed of computation very like what he had experienced when deciding to hurdle the gap in the bridge.

*It's sweep-rate, Dasein thought. It's like hunting submarines — in the mind. It's how many search units you can put to the job and how fast they can travel.*

As quickly as it had come, the sensation was gone. But Dasein had never felt as shaken in his life. No immediate danger had triggered this ability . . . not this time.

*Narrow paths, he thought. He looked up at Piaget in wonder. There was more here than fell upon the ears. Could that be the way Santarogans thought? Dasein shook his head. It didn't seem possible . . . or likely.*

"May I elaborate?" Piaget asked.

Dasein nodded.

"You will have remarked the blunt way we state our relative truths for sales purposes," Piaget said. "Conditional thought rejects any other approach. Mutual respect is implicit, then, in conditional thought. Contrast the market approach of those who sent you to spy upon us. They have . . ."

"How fast can you think?" Dasein asked.

"Fast?" Piaget shrugged. "As fast as necessary."

*As fast as necessary*, Dasein thought.

"May I continue?" Piaget asked.

Again, Dasein nodded.

"It has been noted," Piaget said, "that sewer-peak load times tend to match station breaks on TV — an elementary fact you can recognize with only the briefest reflection. But it's only a short step from this elementary fact to the placement of flow meters in the sewers as a quite accurate check on the available listening units as any given moment. I've no doubt this already is being done; it's so obvious. Now, reflect a moment on the basic attitudes toward their fellow men of people who would do this sort of thing, as opposed to those who could not find it in themselves to do it."

Dasein cleared his throat. Here was the core of Santaroga's indictment against the *outside*. How did you use people? With dig-

nity? Or did you tap their most base functions for your own purposes? The *outside* began to appear more and more as a place of irritating emptiness and contrived blandishments.

*I'm really beginning to see things as a Santarogan*, Dasein thought. There was a sense of victory in the thought. It was what he had set out to do as part of his job.

"It isn't surprising," Piaget said, "to find the 'N-square' law from warfare being applied to advertising and politics — other kinds of warfare, you see — with no real conversion problem from one field to the other. Each has its concepts of concentration and exposure. The mathematic of differentials and predictions apply equally well, no matter the field of battle.

*Armies*, Dasein thought. He focused on Piaget's moving lips, wondering suddenly how the subject had been changed to such a different field. Had Piaget done it deliberately? They'd been talking about Santaroga's blind side, its fears . . .

"You've given me food for speculation," Piaget said. "I'm going to leave you alone for awhile and see if I can come up with something constructive. There's a call bell at the head of your bed. The nurses are not on this floor, but one can be here quite rapidly in an emergency. They'll look in on you from time to time.

Would you like something to read? May I send you anything?"

*Something constructive?* Dasein wondered. *What does he mean?*

"How about some copies of our valley newspaper?" Piaget asked.

"Some writing paper and a pen," Dasein said. He hesitated, then: "And the papers — yes."

"Very well. Try to rest. You appear to be regaining some of your strength, but don't overdo it."

Piaget turned, strode out of the room.

Presently, a red-haired nurse bustled in with a stack of newspapers, a ruled tablet and a dark green ballpoint pen. She deposited them on his nightstand, said: "Do you want your bed straightened?"

"No, thanks."

Dasein found his attention caught by her striking resemblance to Al Marden.

"You're a Marden," he said.

"So what else is new?" she asked and left him.

*Well, get her!* Dasein thought.

He glanced at the stack of newspapers, remembering his search through Santaroga for the paper's office. They had come to him so easily they'd lost some of their allure. He slipped out of bed, found his knees had lost some of their weakness.

The canned food caught his eye.

Dasein rummaged in the box, found an applesauce, ate it swiftly while the food still was redol-

ent with Jaspers. Even as he ate, he hoped this would return him to that level of clarity and speed of thought he'd experienced at the bridge and, briefly, with Piaget.

The applesauce eased his hunger, left him vaguely restless — nothing else.

Was it losing its kick? he wondered. Did it require more and more of the stuff each time? Or was he merely becoming acclimated?

Hooked?

He thought of Jenny pleading with him, cajoling. *A consciousness fuel. What in the name of god had Santaroga discovered?*

Dasein stared out the window at the patch of boundary hills visible through the trees. A fire somewhere beneath his field of view sent smoke spiraling above the ridge. Dasein stared at the smoke, feeling an oddly compulsive mysticism, a deeply primitive sensation about that unseen fire. There was a spirit signature written in the smoke, something out of his own genetic past. No fear accompanied the situation. It was, instead, as though he had been reunited with some part of himself that had been cut off since childhood.

*Pushing back at the surface of childhood,* he thought.

He realized then that a Santarogan did not cut off his primitive past; he contained it within a membranous understanding.

*How far do I go in becoming a Santarogan before I turn back?* he wondered. *I have a duty to Selador and the ones who hired me. When do I make my break?*

The thought filled him with a deep revulsion against returning to the *outside*. But he had to do it. There was a thick feeling of nausea in his throat, a pounding ache at his temples. He thought of the irritant emptiness of the *outside* — piecemeal debris of lives, egos with sham patches, a world almost devoid of anything to make the soul rise and soar.

There was no substructure to life *outside*, he thought, no underlying sequence to tie it all together. There was only a shallow, glittering roadway sign posted with flashy, hypnotic diversions. And behind the glitter — only the bare board structure of props . . . and desolation.

*I can't go back*, he thought. He turned to his bed, threw himself across it. *My duty — I must go back. What's happening to me? Have I waited too long?*

Had Piaget lied about the Jaspers effect?

Dasein turned onto his back, threw an arm across his eyes. What was the chemical essence of Jaspers? Selador could be no help there; the stuff didn't travel.

*I knew that*, Dasein thought. *I knew it all along.*

He took his arm away from his eyes. No doubt of what he'd been doing: avoiding his own respon-

sibility. Dasein looked at the doors in the wall facing him — kitchen, lab . . .

A sigh lifted his chest.

Cheese would be the best carrier, he knew. It held the Jaspers essence longest. The lab . . . and some cheese.

Dasein rang the bell at the head of his bed.

A voice startled him, coming from directly behind his head: "Do you wish a nurse immediately?"

Dasein turned, saw a speaker grill in the wall. "I'd . . . like some Jaspers cheese," he said.

"Oh . . . Right away, sir," There was delight in that feminine voice no electronic reproduction could conceal.

Presently, the red-haired nurse with the stamp of the Marden genes on her face shouldered her way into the room carrying a tray. She placed the tray atop the papers on Dasein's night stand.

"There you are, doctor," she said. "I brought you some crackers, too."

"Thanks," Dasein said.

She turned at the doorway before leaving: "Jenny will be delighted to hear this."

"Jenny's awake?"

"Oh, yes. Most of her problem was an allergenic reaction to the aconite. We've purged the poison from her system and she's making a very rapid recovery. She wants to get up. That's always a good sign."

"How'd the poison get in the food?" Dasein asked.

"One of the student nurses mistook it for a container of MSG. She . . ."

"But how'd it get in the kitchen?"

"We haven't determined yet. No doubt it was some silly accident."

"No doubt," Dasein muttered.

"Well, you eat your cheese and get some rest," she said. "Ring if you need anything."

The door closed briskly behind her.

Dasein looked at the golden block of cheese. Its Jaspers odor clamored at his nostrils. He broke off a small corner of the cheese in his fingers, touched it to his tongue. Dasein's senses jumped to attention. Without conscious volition, he took the cheese into his mouth, swallowed it: smooth, soothing flavor. A clear-headed alertness surged through him.

*Whatever else happens, Dasein thought, the world has to find out about this stuff.*

He swung his feet out of bed, stood up. A pulsing ache throbbed through his forehead. He closed his eyes, felt the world spin, steadied himself against the bed.

The vertigo passed.

Dasein found a cheese knife on the tray, cut a slice off the golden brick, stopped his hand from conveying the food to his mouth.

*The body does it, he thought.*

He felt the strength of the physical demand, promised himself more of the cheese . . . later. First — the lab.

It was pretty much as he'd expected: sparse, but sufficient. There was a good centrifuge, a microtome, a binocular microscope with controlled illumination, gas burner, ranks of clean test tubes — all the instruments and esoterica of the trade.

Dasein found a container of sterile water, another of alcohol, put bits of the cheese into solution. He started a culture flask, made a control slide and examined it under the microscope.

A thread-like binding structure within the cheese leaped into vision. As he raised magnification, the threads resolved into spirals of elongated structure that resembled cells which had been blocked from normal division.

Dasein sat back, puzzled. The thread pattern bore a resemblance to fungoid mycelium spawn. This agreed with his early surmise that he was dealing with a type of fungus growth.

What was the active agent, though?

He closed his eyes to think, realized he was trembling with fatigue.

*Easy does it, he thought. You're not a well man.*

Some of the experiments required time to mature, he told himself. They could wait. He made his way back to bed, stretch-



ed out on the blankets. His left hand reached out to the cheese, broke off a chunk.

Dasein became aware of his own action as he swallowed the cheese. He looked at the crumbled specks on his fingers, rubbed them, felt the oily smoothness. A delicious sense of well being spread through his body.

*The body does it, Dasein thought. Of itself, the body does it. Could the body go out and kill a man? Very likely.*

He felt sleep winding about his consciousness. The body needed sleep. The body would have sleep.

The mind, though, built a dream — of trees growing to gigantic size as he watched them. They leaped up with swift vitality. Their branches swept out, leafed, fruited. All basked under a sun the color of golden cheese.

Sunset was burning orange in the west when Dasein awoke. He lay, his head turned toward the windows, looking out at the blazing sky, his attention caught in a spell akin to ancient sun worship. The ship of life was headed down to its daily rest. Soon, steel darkness would claim the land.

A click sounded behind Dasein. Artificial light flooded the room. He turned, the spell broken.

Jenny stood just inside the door. She wore a long green robe that reached almost to her

ankles. Green slippers covered her feet.

"It's about time you woke up," she said.

Dasein stared at her as at a stranger. He could see it was the same Jenny he loved — her long black hair caught in a red ribbon, full lips slightly parted, dimple showing in her cheek — but furtive smoke drifted in her blue eyes. There was the calm of a goddess about her.

Something eternally of the past moved her body as Jenny stepped farther into the room.

A thrill of fear shot through Dasein. It was the fear an Attic peasant might have experienced before a priestess at Delphi. She was beautiful . . . and deadly.

"Aren't you going to ask how I am?" she asked.

"I can see you're all right," he said.

She took another step toward him, said: "Clara brought Jersey Hofstedder's car over and left it for you. It's down in the garage."

Dasein thought of that beautifully machined automobile — another bauble to attract him.

"And what have you brought — this time?" he asked.

"Gil!"

"There's no food in your hands," he said. "Is it a poisoned hatpin, perhaps?"

Tears flooded her eyes.

"Stay away from me," he said.

"I love you."

She nodded. "I do love you.

And . . . I've felt how dangerous I could be . . . to you. There've been . . ." She shook her head. "I knew I had to stay away from you. But not any more. Not now."

"So it's all over," he said. "Let bygones be bygones. Wouldn't a gun be quicker?"

She stamped a foot. "Gill, you're impossible!"

"I'm impossible?"

"Have you changed?" she whispered. "Don't you feel any . . ."

"I still love you," he said. "Stay away from me. I love you."

She bit her lip.

"Wouldn't it be kindest to do it while I'm asleep?" he asked. "Never let me know who . . ."

"Stop it!"

Abruptly, she ripped off the green robe, revealing a white, lace-edged nightgown beneath. She dropped the robe, pulled the gown over her head, threw it on the floor, stood there naked, glaring at him.

"See?" she said. "Nothing here but a woman! Nothing here but the woman who loves you." Tears ran down her cheeks. "No poison in my hands . . . Oh, Gil . . ." His name came out as a wail.

Dasein forced his gaze away from her. He knew he couldn't look at her — lovely, lithe, desirable — and retain any coolness of judgment. She was beautiful and deadly — the ultimate bait Santaroga offered.

There was a rustling of cloth

the direction of the door.

He whirled.

She stood once more clothed in the green robe. Her cheeks were scarlet, lips trembling, eyes downcast. Slowly, she raised her eyes, met his stare.

"I have no shame with you, Gil," she said. "I love you. I want no secrets between us at all — no secrets of the flesh . . . no secrets of any kind."

Dasein tried to swallow past a lump in his throat. The goddess was vulnerable. It was a discovery that caused an ache in his chest.

"I feel the same way," he said. "Jen . . . you'd better leave now. If you don't . . . I might just grab you and rape you."

She tried to smile, failed, whirled away and ran out of the room.

The door slammed. There was a moment's silence. The door opened. Piaget stood in the opening looking back into the foyer. The sound of the elevator doors closing came clearly to Dasein. Piaget came in, closed the door.

"What happened with you two?" he asked.

"I think we just had a fight and made up," Dasein said. "I'm not sure."

Piaget cleared his throat. There was a look of confidence in his round face, Dasein thought. It was not a judgment he could be sure of, however, in the unmapped land of those blocky features. It might merely have been a look of concentration. At any

rate, the look was gone now, replaced by a wide-eyed stare of interest in Dasein.

"You're looking vastly improved," Piaget said. "You've a better color in your face. Feeling stronger?"

"As a matter of fact I am."

Piaget glanced at the remains of the cheese on the nightstand, crossed and sniffed at it. "Bit stale," he said. "I'll have a fresh block sent up."

"You do that," Dasein said.

"Care to let me look at your bandages?" Piaget asked.

"I thought we were going to let Burdeaux work on my bandages."

"Win had a small emergency at home. His daughter's getting married tomorrow, you know. He'll be along later."

"I didn't know."

"Just getting the new couple's house built in time," Piaget said. "Bit of a delay because we decided to build four at once in the same area. Good location—you and Jenny might like one of them."

"That's nice," Dasein said. "You all get together and build a house for the newlyweds."

"We take care of our own," Piaget said. "Let's look at those bandages, shall we?"

"Let's."

"Glad to see you're being more reasonable," Piaget said. "Be right back." He went out the lab door, returned in a moment with a supply cart, stationed the cart

beside Dasein's bed, began cutting away the head bandages.

"See you've been puttering around the lab," Piaget said.

Dasein winced as air hit the burn on his cheek. "Is that what I've been doing, puttering?"

"What have you been doing?" Piaget asked. He bent, examined Dasein's cheek. "This is coming along fine. Won't even leave a scar, I do believe."

"I'm looking for the active agent in Jaspers," Dasein said.

"Been several attempts along that line," Piaget said. "Trouble is we all get too busy with more immediate problems."

"You've had a try at it?" Dasein asked.

"When I was younger."

Dasein waited for the head bandage to be tied off before asking: "Do you have notes, any summary of . . ."

"No notes. Never had time."

Piaget began working on Dasein's right arm.

"But what did you find out?"

"Got a broth rich in amino acids," Piaget said. "Yeast like. You're going to have a scar on this arm, nothing alarming, and you're healing rapidly. You can thank Jaspers for that."

"What?" Dasein looked up at him, puzzled.

"Nature gives; nature takes away. The Jaspers change in body chemistry makes you more susceptible to allergenic reactions, but your body will heal five to ten

times faster than it would *outside*."

Dasein looked down at his exposed arm. Pink new flesh already covered the burned area. He could see the scar puckering Piaget had noted.

"What change in body chemistry?" Dasein asked.

"Well, mostly a better hormone balance," Piaget said. "Closer to what you find in an embryo."

"That doesn't square with the allergy reactions," Dasein protested.

"I'm not saying it's a simple thing," Piaget said. "Hold your arm out here. Steady now."

Dasein waited for the bandage to be completed, then: "What about structure and . . ."

"Something between a virus and a bacteria," Piaget said. "Fungusoid in some respects, but . . ."

"I saw cell structure in a sample under the microscope."

"Yes, but no nucleus. Some nuclear material, certainly, but it can be induced to form virusoid crystals."

"Do the crystals have the Jaspers effect?"

"No. They can, however, be introduced into the proper environment and after suitable development they will produce the desired effect."

"What environment?"

"You know what environment, Gilbert."

"The Co-op's cave?"

"Yes." Piaget finished exposing Dasein's left arm. "Don't think you'll have as much scar tissue on this side."

"What's unique about the cave environment?" Dasein asked.

"We're not certain."

"Hasn't anybody ever tried to . . ."

"We do have a great many *immediate* problems just to maintain ourselves, Gilbert," Piaget said.

Dasein looked down, watched Piaget finish the bandage on the left arm. *Maintain themselves?* he wondered.

"Is there any objection to my looking into it?" Dasein asked.

"When you find time—certainly not." Piaget restored instruments and material to the cart, pushed it aside. "There. I think we'll be able to take the bandages off tomorrow. You're progressing beautifully."

"Am I really?"

Piaget smiled at him. "Insurance from the garage will take care of paying for your new car," he said. "I presume Jenny told you about the car."

"She told me."

"We're also replacing your clothing. Is there anything else?"

"How about replacing my freedom of choice?"

"You have freedom of choice, Gilbert, and a broader area from which to choose. Now, I have some . . ."

"Keep your advice."

"Advice? I was about to say I have some rather interesting information for you. Your suggestion that I look into the people you accuse of trying to kill you has borne some . . ."

"My suggestion that *you* look."

"I took the liberty of going ahead with your suggestion."

"So you hypnotized some of them," Dasein said. "Did you prepare a Davis chart on their suscept . . ."

"I didn't *not* hypnotize them," Piaget snapped. "Will you be silent and listen?"

Dasein sighed, looked at the ceiling.

"I've interviewed several of these people," Piaget said. "The boy, Petey Jorick, first because he's a primary concern of mine, having just been released from . . . school. An extremely interesting fact emerges."

"Oh?"

"Each of these persons has a strong unconscious reason to fear and hate the *outside*."

"What?" Dasein turned a puzzled frown on Piaget.

"They weren't attacking you as Gilbert Dasein," Piaget said. "You were the *outsider*. There's a strong unresolved . . ."

"You mean you consider this good and sufficient . . ."

"The reasons are unconscious, as you suspected," Piaget said. "The structure of motivation, however . . ."

"So Jenny both loves me and hates me . . . as an *outsider*?"

"Get one thing straight, Gilbert. Jenny did not try to harm you. It was a student nurse who . . ."

"Jenny told me herself she prepared . . ."

"Only in the broadest sense is that true," Piaget said. "She did go to the diet kitchen and order your food and watch while it was prepared. However, she couldn't keep an eye on every . . ."

"And this . . . this hate of *outsiders*," Dasein said, "you think this is why some of your people tried to get me?"

"It's clearly indicated, Gilbert."

Dasein stared at him. Piaget believed this—no doubt of it.

"So all I have to watch out for as long as I live in Santaroga is people who hate outsiders?" Dasein asked.

"You have nothing to fear now at all," Piaget said. "You're no longer an outsider. You're one of us. And when you and Jenny marry . . ."

"Of all the nonsense I've ever heard," Dasein said. "This takes all the honors! This . . . this kid, Petey, he just wanted to put an arrow through me because . . ."

"He has a pathological fear of leaving the valley for college outside," Piaget said. "He'll overcome this, of course, but the emotions of childhood have more . . ."

"The roach powder in the coffee," Dasein said . . .

"That's a very unhappy case," Piaget said. "She fell in love with an outsider at college—much as Jenny did, I might add. The difference is that her friend seduced her and left her. She has a daughter who . . ."

"My god! You really believe this crap," Dasein said. He pushed himself against the head of the bed, sat glaring at Piaget.

"Gilbert, I find this far easier to believe than I do your wild theory that Santaroga has mounted a concerted attack against you. After all, you yourself must see . . ."

"Sure," Dasein said. "I want you to explain the accident at the bridge. I want to see how that . . ."

"Easiest of all," Piaget said. "The young man in question was enamored of Jenny before you came on the scene."

"So he just waited for the moment when . . ."

"It was entirely on the unconscious level, that I assure you, Gilbert."

Dasein merely stared at him. The structure of rationalization Piaget had built up assumed for Dasein the shape of a tree. It was like the tree of his dream. There was the strong trunk protruding into daylight—consciousness. The roots were down there growing in darkness. The limbs came out and dangled prettily distracting leaves and fruit. It was a consistent structure despite its falsity.

There'd be no cutting it down, Dasein saw. The thing was too substantial. There were too many like it in the forest that was Santaroga. "*This is a tree, see? Doesn't it look like all the others?*"

"I think when you've had time to reflect," Piaget said, "you'll come to realize the truth of what . . ."

"Oh, no doubt," Dasein said.

"I'll, uh . . . I'll send you up some more fresh cheese," Piaget said. "Special stock."

"You do that," Dasein said.

"I quite understand," Piaget said. "You think you're being very cynical and wise right now. But you'll come around." He strode from the room.

Dasein continued to stare at the closed door long after Piaget had gone. The man couldn't see it, would never be capable of seeing it. No Santarogan could. Not even Jenny despite her love-sharpened awareness. Piaget's explanation was too easy to take. It'd be the official line.

*I've got to get out of this crazy valley,* Dasein thought.

He slipped out of bed just as the door opened and a hatless, chubby young student nurse entered with a tray.

"Oh, you're out of bed," she said. "Good."

She took the old tray off the nightstand, put the new one in its place, set the old one on a chair.

"I'll just straighten up your bed while you're out of it," she said.

Dasein stood to one side while she hustled about the bed. Presently, she left, taking the old tray with her.

He looked at what she had brought—a golden wedge of cheese, crackers, a glass and a bottle of Jaspers beer.

In a surge of anger, Dasein hurled the cheese against the wall. He was standing there staring at the mess when a soothing sensation on his tongue made him realize he was licking the crumbs off his fingers.

Dasein stared at his own hand as though it belonged to another person. He consciously forced himself not to bend and recover the cheese from the floor, turned to the beer. There was an opener behind the bottle. He poured it into the glass, drank in swift gulps. Only when the glass was drained did he grow aware of the rich bouquet of Jaspers in the remaining drops of beer.

Fighting down a fit of trembling, Dasein put the glass on the nightstand, crawled into the bed as though seeking sanctuary.

His body refused to be denied. People didn't take Jaspers, he thought. Jaspers took people. He felt the expanding effect within his consciousness, sensed the thunder of a host jarring across the inner landscape of his psyche.

SANTAROGA BARRIER

Time lost its normal flow, became compressed and explosive.

Somewhere in a hospital room there were purposeful footsteps. The toggles of a switch slammed away from their connections to create darkness. A door closed.

Dasein opened his eyes to a window and starshine. In its illumination he saw a fresh wedge of cheese on his nightstand. The mess had been cleaned from wall and floor. He remembered Jenny's voice—soft, musical, rippling like dark water over rocks, a plaintive tremor in it.

Had Jenny been here in the dark?

He sensed no answer.

Dasein groped for the call buzzer at the head of his bed, pressed it.

A voice sounded from the speaker: "Do you wish a nurse?"

"What time is it?" Dasein asked.

"Three twenty-four a.m. Do you want a sleeping pill?"

"No . . . thanks."

He sat up, slid his feet to the floor, stared at the cheese.

"Did you just want the time?" the speaker asked.

"What does a full round of Jaspers cheese weigh?" he asked.

"The weight?" There was a pause, then: "They vary. The smaller ones weigh about thirty pounds. Why?"

"Send me a full round," he said.

"A full round?"

"I want it for lab tests," he said, and he thought: *There! Let's see if Piaget was being honest with me.*

"You want it when you get up in the morning?"

"I'm up now. And get me a robe and some slippers if you can."

"Hadn't you better wait, doctor. If . . ."

"Check with Piaget if you must," Dasein said. "I want that round now."

"Very well." She sounded disapproving.

Dasein waited sitting on the edge of the bed. He stared out the window at the night. Absently, he broke off a chunk of the cheese on his nightstand, chewed it and swallowed.

Presently, the foyer door produced a wedge of light. A tall, gray-haired nurse entered, turned on the room's lights. She carried a large wheel of golden cheese still glistening in its wax sealer.

"This is thirty-six pounds of prime Jaspers cheese," she said. "Where shall I put it?" There were overtones of outrage and protest in her voice.

"Find a place for it on one of the lab benches," he said. "Where are the robe and slippers?"

"If you'll be patient, I'll get them for you," she said. She shouldered her way through the lab door, returned in a moment and crossed to a narrow door at

the far end of the room, opened it to reveal a closet. From the closet she removed a green robe and a pair of black slippers which she dumped on the foot of Dasein's bed.

"Will that be all—sir?"

"That'll be all, for now."

"Hmmp." She strode from the room, shut the foyer door with a final-comment thump.

Dasein took another bite of the cheese from his nightstand, put on the robe and slippers, went into the lab. The nurse had left the lights on. The round of cheese lay on an open metal bench at his right.

*Alcohol won't kill it, he thought. Otherwise, it couldn't be incorporated in the local beer. What does destroy it? Sunlight?*

He recalled the dim red light of the Co-op's cave.

Well, there were ways of finding out. He rolled back the sleeves of his gown, set to work.

Within an hour he had three fourths of the round reduced to a milky solution in a carboy, set about feeding it through the centrifuge.

The test tubes came out with their contents layered in a manner reminiscent of a chromatograph. Near the top was a thin silver-grey band of material.

Dasein poured off the liquid, burned a hole in the bottom of the test tube and removed the solids intact by blowing into the hole he'd created. A bit of the



grey material went on a slide and he examined it under the microscope.

There was the mycelium structure, distorted but recognizable. He smelled the slide. It was redolent of Jaspers. He put a hand to the microscope's variable light control, watched the specimen while rotating the control. Abruptly, the specimen began to shrivel and crystallize before his eyes.

Dasein looked at the light control. It was the spectrum-window type and, at this moment, was passing light in the Angstrom range 4,000-5,800. It was cutting off the red end, Dasein noted.

Another look through the microscope showed the specimen reduced to a white crystalline mass.

Sunlight, then.

What would do the job? he wondered. A bomb to open the cave? A portable sunlamp?

As he thought this, Dasein felt that the darkness outside the hospital parted to reveal a shape, a monster rising out of a black lake.

He shuddered, turned to the carboy of milky solution. Working mechanically, he put the rest of the solution through the centrifuge, separated the silver-gray band, collected the material in a dark brown bottle. The solution produced almost a pint of the Jaspers essence.

Dasein smelled the bottle—sharp and definite odor of Jaspers. He emptied the bottle into a

shallow dish, caught a bit of the substance on a spatula, touched it to his tongue.

An electrifying sensation of distant fireworks exploded from his tastebuds through his spine. He felt he could see with the tip of his tongue or the tip of a finger. Dasein sensed his core of awareness becoming a steely kernel surrounded by desolation. He concentrated his energy, forced himself to look at the dish of Jaspers essence.

*Empty!*

What had destroyed it? How could it be empty?

He looked at the palm of his right hand. How close it was to his face! There were specks of silver-gray against the pink flesh.

Tingling pulses of awareness began surging out from his throat and stomach, along his arms and legs. He felt that his entire skin came alight. There was a remote feeling of a body slipping to the floor, but he felt that the floor glowed wherever the body touched it.

*I ate the entire dish of essence,* he thought.

What would it do—the active agent from more than thirty pounds of Jaspers cheese? What would it do? What was it doing? Dasein felt this to be an even more interesting question.

What was it doing?

As he asked the question of himself, he experienced anguish. It wasn't fear, but pure anguish, a

sense of losing his grip on reality.

The steely kernel of selfdom! Where was it?

Upon what fundament of reality did his selfdom sit? Frantically, Dasein tried to extend his awareness, experienced the direct sensation that he was projecting his own reality upon the universe. But there was a projection of the universe simultaneously. He followed the lines of this projection, felt them sweep through him as though through a shadow.

In this instant, he was lost, tumbling.

*I was just a shadow*, he thought.

The thought fascinated him. He remembered the shadow game of his childhood, wondered, what forms of shadows he could project by distorting the core of self. The wondering produced the effect of shapes. Dasein sensed a screen of awareness, a shapeless outline upon it. He willed the shape to change.

A muscled, breast-beating hero took form there.

Dasein shifted his emphasis.

The shadow became a bent-shouldered, myopic scientist in a long gown. Another shift: It was naked Apollo racing over a landscape of feminine figures.

And again—a plodder bent beneath a shapeless load.

With a gulping sensation of *deitgrasp* Dasein realized he was projecting the only limits his fin-

ite being could know. It was an act of self discovery that gave birth to a feeling of hope. It was an odd sort of hope, unfixed, disoriented, but definite in its existence—not a hope of discernment, but pure hope without boundaries, direction or attachments.

Hope itself.

It was a profound instant permitting him to grasp for a fleeting instant the structure of his own existence, his possibilities as a being.

A twisted, dented and distorted *something* crossed the field of Dasein's awareness. He recognized the kernel of selfdom. The thing had lost all useful shape. He discarded it, chuckling.

*Who discarded it?* Dasein wondered.

*Who chuckles?*

There was a pounding sound—feet upon a floor.

Voices.

He recognized the tones of the gray-haired nurse, but there was a tingling of panic in the sounds she made.

Piaget.

"Let's get him on the bed," Piaget said. The words were clear and distinct.

What was not distinct was the shape of a universe become blurred rainbows, nor the pressures of hands which blotted out the glowing sensation of his skin.

"It's difficult to become conscious about consciousness," Dasein muttered.

"Did he say something?" That was the nurse.

"I couldn't make it out." Piaget.

"Did you smell the Jaspers in there?" The nurse.

"I think he separated the essence out and took it."

"Oh, my god! What can we do?"

"Wait and pray. Bring me a straight jacket and the emergency cart."

*A straight jacket? Dasein wondered. What an odd request.*

He heard running footsteps. How loud they were! A door slammed. More voices. Such a rushing around!

His skin felt as though it were growing dark. Everything was being blotted out.

With an abrupt, jerking sensation, Dasein felt himself shrivel downward into an infant shape kicking, squalling, reaching outward, outward, fingers grasping.

"Give me a hand with him!" That was Piaget.

"What a mess!" Another male voice.

But Dasein already felt himself becoming a mouth, just a mouth. It blew out, out, out—such a wind. Surely, the entire world must collapse before this hurricane.

He was a board, rocking. A teeter-totter. Down and up—up and down.

*A good run is better than a bad stand, he thought.*

And he was running, running—breathless, gasping.

A bench loomed out of swirling clouds. He threw himself down on it, became the bench—another board. This one dipped down and down into a boiling green sea.

*Life in a sea of unconsciousness, Dasein thought.*

It grew darker and darker.

*Death, he thought. Here's the background against which I can know myself.*

The darkness dissolved. He was shooting upward, rebounding into a blinding glare.

Dark shapes moved in the glare.

"His eyes are open." That was the nurse.

A shadow reduced the glare. "Gilbert?" That was Piaget. "Gilbert, can you hear me? How much Jaspers did you take?"

Dasein tried to speak. His lips refused to obey.

The glare came back.

"We'll just have to guess." Piaget. "How much did that cheese weigh?"

"Thirty-six pounds." The nurse.

"The physical breakdown is massive." Piaget. "Have a respirator standing by."

"Doctor, what if he . . ." The nurse apparently couldn't complete the statement of her fear.

"I'm . . . ready." Piaget.

*Ready for what? Dasein wondered.*

By concentrating, he found he could make the glare recede. It resolved momentarily into a tun-

nel of clarity with Piaget at the far end of it. Dasein lay helplessly staring, unable to move as Piaget advanced on him carrying a carboy that fumed and smoked.

*Acid, Dasein thought, interpreting the nurse's words. If I die, they'll dissolve me and wash me away down a drain. No body, no evidence.*

The tunnel collapsed.

The sensation of glare expanded, contracted.

*Perhaps, I can no longer be,* Dasein thought.

It grew darker.

*Perhaps, I cannot do,* he thought.

Darker yet.

*Perhaps, I cannot have,* he thought.

Nothing.

"It was kill or cure," the yellow god said.

"I wash my hands of you," said the white god.

"What I offered, you did not want," the red god accused.

"You make me laugh," said the black god.

"There is no tree that's you," the green god said.

"We are going now and only one of us will return," the gods chorused.

There was a sound of a clearing throat.

"Why don't you have faces?" Dasein asked. "You have color but no faces."

"What?" It was a rumbling, vibrant voice.

"You're a funny sounding god," Dasein said. He opened his eyes, looked up into Burdeaux's features, caught a puzzled scowl on the dark face.

"I'm no sort of god at all," Burdeaux said, "What're you saying, Doctor Gil? You having another nightmare?"

Dasein blinked, tried to move his arms. Nothing happened. He lifted his head, looked down at his body. He was bound tightly in a restraining jacket. There was a stink of disinfectants, of Jaspers and of something repellent and sour in the room. He looked around. It was still the isolation suite. His head fell back to the pillow.

"Why'm I tied down like this?" Dasein whispered.

"What did you say, sir?"

Dasein repeated his question.

"Well, Doctor Gil, we didn't want you to hurt yourself."

"When . . . when can I be released?"

"Doctor Larry said to free you as soon as you woke up."

"I'm . . . awake."

"I know that, sir. I was just . . ." He shrugged, began unfastening the bindings on the sleeves of the jacket.

"How long?" Dasein whispered.

"How long you been here like this?"

Dasein nodded.

"Three whole days now. And a little more. It's almost noon."

The bindings were untied. Burdeaux helped Dasein to a sitting position, unlaced the back, slipped the jacket off.

Dasein's back felt raw and sensitive. His muscles responded as though they belonged to a stranger. This was an entirely new body, Dasein thought.

Burdeaux came up with a white hospital gown, slipped it onto Dasein, tied the back.

"You want the nurse to come rub your back?" he asked. "You've a couple of red places there don't look too good."

"No . . . no thanks."

Dasein moved one of the stranger's arms. A familiar hand came up in front of his face. It was his own hand. How could it be his own hand, he wondered, when the muscles of the arm belonged to a stranger?

"Doctor Larry said no one ever took that much Jaspers ever before all at once," Burdeaux said. "Jaspers is a good thing, sir, but everybody knows you can get too much."

"Does . . . is Jenny . . ."

"She's fine, Doctor Gil. She's been worried sick about you. We all have."

Dasein moved one of the stranger's legs, then the other until they hung over the edge of the bed. He looked down at his own knees. It was very odd.

"Here, now," Burdeaux said.

"Best you stay in bed."

"I've . . . I . . ."

"You want to go to the bathroom? Best I bring you the bedpan."

"No . . . I . . ." Dasein shook his head. Abruptly, he realized what was wrong. The body was hungry.

"Hungry," he said.

"Well, why didn't you say so? Got food right here waiting."

Burdeaux lifted a bowl, held it in front of Dasein. The rich aroma of Jaspers enveloped him. Dasein reached toward the bowl, but Burdeaux said, "Best let me feed you, Doctor Gil. You don't look too steady."

Dasein sat patiently, allowed himself to be fed. He could feel strength gathering in the body. It was a bad fit, this body, he decided. It had been draped loosely on his psyche.

It occurred to him to wonder what the body was eating—in addition to the Jaspers which surrounded him and pervaded him with its presence. Oatmeal, the tongue said. Jaspers honey and Jaspers cream.

"There's a visitor waiting to see you," Burdeaux said when the bowl was empty.

"Jenny?"

"No . . . a Doctor Selador."

*Selador!* The name exploded on Dasein's conscience. Selador had trusted him, depended on him.

Selador had sent a gun through the mails.

"You feel up to seeing him?" Burdeaux asked.

"You . . . don't mind if I see him?" Dasein asked.

"Mind? Why should I mind, sir?"

*Burdeaux's not the you I meant*, Dasein thought.

There arose in Dasein then an urge to send Selador away. Such an easy thing to do. Santaroga would insulate him from the Seladors of the world. A simple request to Burdeaux was all it would take.

"I'll . . . uh, see him," Dasein said. He looked around the room. "Could you help me into a robe and . . .

"Why don't I put you in a wheel chair, sir? Doctor Larry had one sent up for when you awakened. He didn't want you exerting yourself. You're not to get tired, understand?"

"Yes . . . yes, I understand. A wheelchair."

Presently, Dasein's bad-fit body was in the wheelchair. Burdeaux had gone to bring Selador, leaving the chair at the far end of the room from the foyer door. Dasein found himself facing a pair of french doors that opened onto a sun deck.

He felt he had been left alone in a brutally exposed position, his soul naked, wretched with fear. There was a heavy load on him, he thought. He felt embarrassment at the prospect of meeting Selador, and a special order of

fright. Selador saw through pretense and shame. You could wear no mask before Selador. He was the psychoanalysts' psychoanalyst.

*Selador will humiliate me*, Dasein thought. *Why did I agree to see him? He will prod me and I will react. My reaction will tell him everything he wants to know about me . . . about my failure.*

Dasein felt then his sanity had been corroded into a pitted shell, a thing of tinsel and fantasy. Selador would stamp upon it with the harsh, jolting dynamics of his aliveness.

The foyer door opened.

Slowly, forcing himself to it, Dasein turned his head toward the door.

Selador stood in the opening, tall, hawk-featured, the dark skin and wildness of India encased in a silver gray tweed suit, a touch of the same silver at the temples. Dasein had the sudden blurred sensation of having seen this face in another life, the lancet eyes peering from beneath a turban. It had been a turban with a red jewel in it.

Dasein shook his head. Madness.

"Gilbert," Selador said, striding across the room. "In the name of heaven, what have you done to yourself now?" The precise accents of Oxford hammered each word into Dasein's ears. "They said you were badly burned."

And thus it starts, Dasein thought.

"I . . . my arms and hands," Dasein said. "And a bit about the face."

"I arrived only this morning," Selador said. "We were quite worried about you, you know. No word from you for days."

He stopped in front of Dasein, blocking off part of the view of the sun deck.

"I must say you look a fright, Gilbert. There don't appear to be any scars on your face, though."

Dasein put a hand to his cheek. It was his cheek suddenly, not a stranger's. The skin felt smooth, new.

"There's the damndest musky smell about this place," Selador said. "Mind if I open these doors?"

"No . . . no, go right ahead."

Dasein found himself wrestling with the feeling that Selador was not Selador. There was a shallowness to the man's speech and mannerisms all out of character with the Selador of Dasein's memory. Had Selador changed in some way?

"Lovely sunny day," Selador said. "Why don't I wheel you out on this deck for a bit of air. Do you good."

Panic seized Dasein's throat. That deck—it was a place of menace. He tried to speak, to object. They couldn't go out there. No words came.

Selador took the silence for

agreement, wheeled Dasein's chair out the door. There was a slight jolt at the sill and they were on the deck.

Sunlight warmed Dasein's head. A breeze almost devoid of Jaspers washed his skin, cleared his head. He said: "Don't you..."

"Doesn't this air feel invigorating?" Selador asked. He stopped at a shallow parapet, the edge of the roof. "There. You can admire the view and I can sit on this ledge."

Selador sat down, put a hand on the back of Dasein's chair. "I would imagine that ward is wired for sound," Selador said. "I do not believe they can have listening devices out here, however."

Dasein gripped the wheels of his chair, afraid it might lurch forward, propel him off the roof. He stared down at a paved parking area, parked cars, lawn, strips of flowers, trees. The sense of Selador's words came to him slowly.

"Wired . . . for . . ." He turned, met amused inquiry in the dark eyes.

"Obviously, you're not quite yourself yet," Selador said. "Understandable. You've been through a terrible ordeal. That's obvious. I'll have you out of this place, though, as soon as you're able to travel. Set your mind at rest. You'll be safe in a *normal* hospital at Berkeley before the week's out."

Dasein's emotions boiled, an

arena of dispute. *Safe!* What a reassuring word. *Leave?* He couldn't leave! But he had to leave. *Outside? Go to that hideous place?*

"Have you been drugged, Gilbert?" Selador asked. "You appear . . . so . . . so . . ."

"I've . . . I'm all right."

"Really, you're behaving rather oddly. You haven't asked me once what we found on the leads you provided."

"What . . ."

"The source of their petrol proved to be a dud. All quite normal . . . provided you appreciate their economic motives. Cash deal with an independent producer. The State Department of Agriculture gives their cheese and other products of their Cooperative a clean bill of health. The real estate board, however, is interested that no one but Santarogans can buy property in the valley. It may be they've violated anti-discriminatory legislation with . . ."

"No," Dasein said. "They . . . nothing that obvious."

"Ah, ha! "You speak in the fashion of a man who has discovered the closeted skeleton. Well, Gilbert, what is it?"

Dasein felt he'd been seized by a vampire of duty. It would drain the blood from him. Selador would feed on it. He shook his head from side to side.

"Are you ill, Gilbert? Am I wearying you?"

"No. As long as I take it slow-

ly . . . Doctor, you must understand, I've . . ."

"Do you have notes, Gilbert? Perhaps I could read your report and . . ."

"No . . . fire."

"Oh, yes. The doctor, this Piaget, said something about your truck burning. Everything up in smoke, I suppose?"

"Yes."

"Well, then, Gilbert, we'll have to get it from your lips. Is there an opening we can use to break these people?"

Dasein thought of the greenhouses — child labor. He thought of the statistical few Santarogans Jaspers had destroyed. He thought of the narcotic implications in the Jaspers products. It was all there — destruction for Santaroga.

"There must be something," Selador said. "You've lasted much longer than the others. Apparently, you've been given the freedom of the region. I'm sure you must have discovered something."

*Lasted much longer than the others*, Dasein thought. There was naked revelation in the phrase. As though he had participated in them, Dasein saw the discussions which had gone into choosing him for this project. *"Dasein has connections in the valley—a girl. That may be the edge we need. Certainly, it gives us reason to hope he'll last longer than the others."*



It had been something like that, Dasein knew. There was a callousness in it that repelled him.

"Were there more than two?" he asked.

"Two? Two what, Gilbert?"

"Two other investigators . . . before me?"

"I don't see where that . . ."

"Were there?"

"Well . . . that's very discerning of you, Gilbert. Yes, there were more than two. Eight or nine, I suspect."

"Why . . ."

"Why weren't you told? We wanted to imbue you with caution, but we saw no need to terrify you."

"But you thought they were murdered here . . . by Santarogans?"

"It was all exceedingly mysterious, Gilbert. We were not at all sure." He studied Dasein, eyes open wide and probing. "That's it, eh? Murder. Are we in peril right now? Do you have the weapon I . . ."

"If it were only that simple," Dasein said.

"In heaven's name, Gilbert, what is it? You must have found something. I had such high hopes for you."

*High hopes for me*, Dasein thought. Again, it was a phrase that opened a door on secret conversations. How could Selador be that transparent? Dasein found himself shocked by the shallowness of the man. Where was the

omnipotent psychoanalyst? How could he have changed so profoundly?

"You . . . you people were just using me," Dasein said. As he spoke, he recalled Al Marden's accusation. Marden had seen this . . . yes.

"Now, Gilbert, that's no attitude to take. Why, just before I left to come up here, Meyer Davidson was *inquiring* after you. You recall Davidson, the agent for the investment corporation behind the chain stores? He was very much taken with you, Gilbert. He told me he was thinking of making a place for you on his staff."

Dasein stared at Selador. The man couldn't be serious.

"That would be quite a step up in the world for you, Gilbert."

Dasein suppressed an urge to laugh. He had the odd sensation of being detached from his past and able to study a pseudo-person, a might-have-been creature who was himself. The other Dasein would have leaped at this offer. The new Dasein saw through the offer to the true opinion Selador and his cronies held for "*that useful, but not very bright person, Gilbert Dasein.*"

"Have you had a look at Santaroga?" Dasein asked. He wondered if Selador had seen Sarah Scheler's used car lot or the advertisements in the store windows.

"This morning, while I was

waiting for visiting hours with you, I drove around a bit," Selador said.

"What did you think of the place?"

"My candid opinion? An odd sort of village. When I inquired directions of a native—their language is so brusque and . . . odd. Not at all like . . . well, it's not English, of course, full of Americanisms, but . . ."

"They have a language like their cheese," Dasein said. "Sharp and full of tang."

"Sharp! A very good choice of word."

"A community of individuals, wouldn't you say?" Dasein asked.

"Perhaps . . . but with a certain sameness to them. Tell me, Gilbert, does this have something to do with why you were sent here?"

"This?"

"These questions. I must say, you're talking like . . . well, damned if you don't sound like a native." A forced laugh escaped his dark lips. "Have you gone native?"

The question, coming from that darkly eastern face, couched in that Oxford accent, struck Dasein as supremely amusing. Selador, of all people! To ask such a question.

Laughter bubbled from Dasein.

Selador misinterpreted the response. "Well," he said. "I should hope you hadn't."

"Humanity ought to be the first

order of interest for humans," Dasein said.

Again, Selador misinterpreted. "Ah, and you studied the Santarogans like the excellent psychologist you are. Good. Well, then—tell it in your own way."

"I'll put it another way," Dasein said. "To have freedom, you must know how to use it. There's a distinct possibility some people hunt freedom in such a way they become the slaves of freedom."

"That's all very philosophical, I'm sure," Selador said. "How does it apply to finding justice for our sponsors?"

"Justice?"

"Certainly, justice. They were lured into this valley and cheated. They spent large sums of money here and got no return on it whatsoever. They're not people to take such treatment lightly."

"Lured?" Dasein said. "No one would sell to them, that I'm sure. How were they lured? For that matter, how did they acquire a lease on . . ."

"This isn't pertinent, Gilbert."

"Yes, it is. How'd they get a lease on Santaroga land?"

Selador sighed. "Very well. If you insist. They forced a competitive bid on some excess State property and put in a bid . . ."

"One they were sure no one else would match," Dasein said. He chuckled. "Did they have a market survey?"

"They had a good idea how many people live here."

"But what kind of people?"

"What're you trying to say, Gilbert?"

"Santaroga's very like a Greek *polis*," Dasein said. "This is a community of individuals, not a collectivity. Santarogans are not ant-hill slaves to grubs and grubbing. This is a *polis*, small enough to meet human needs. Their first interest is in human beings. Now, as to justice for . . ."

"Gilbert, you're talking very strangely."

"Hear me, please, doctor."

"Very well, but I hope you'll make some sense out of this . . . this . . ."

"Justice," Dasein said. "These sponsors you mention, and the government they control, are less interested in justice than they are in public order. They have stunted imaginations from too long and too intimate association with an ingrown system of self-perpetuating precedents. Do you want to know how they and their machinations appear to a Santarogan?"

"Let me remind you, Gilbert, this is one of the reasons you were sent here."

Dasein smiled. Selador's accusatory tone brought not a twinge of guilt.

"Raw power," Dasein said. "That's how the *outside* appears to a Santarogan. "A place of raw power. Money and raw power have taken over there."

"Outside," Selador said. "What

an interesting emphasis you give to that interesting word."

"Raw power is movement without a governor," Dasein said. "It'll run wild and destroy itself with all about it. That's a civilization of battlefields out there. They have special names: market area, trade area, court, election, senate, auction, strike—but they're still battlefields. There's no denying it because everyone can invoke the full gamut of weaponry from words to guns."

"I do believe you're defending these Santaroga rascals," Selador said.

"Of course I'm defending them! I've had my eyes opened here, I tell you. I lasted much longer, did I? You had such high hopes for me! How can you be so damn' transparent?"

"Now you see here, Gilbert!" Selador stood up, glared down at Dasein.

"You know what gets to me, really gets to me?" Dasein asked. "Justice! You're all so damned interested in putting a cloak of justice and legality on your frauds! You give me a . . ."

"Doctor Gil?"

It was Burdeaux's voice calling from the doorway behind him. Dasein yanked back on his chair's left wheel, pushed on the right wheel. The chair whirled. All in the same instant, Dasein saw Burdeaux standing in the french doors, felt his chair hit something. He turned his head toward

Seldaor in time to see a pair of feet disappear over the edge of the roof. There was a long, despairing cry terminated by the most sickening wet thud Dasein had ever heard.

Burdeaux was suddenly beside him, leaning on the parapet to peer down at the parking area.

"Oh, my goodness," Burdeaux said. "Oh, my goodness, what a terrible accident."

Dasein lifted his hands, looked at them—*his hands. I'm not strong enough to've done that*, he thought. *I've been ill. I'm not strong enough.*

"A major contributing factor to the accident," Piaget said, "was the victim's own foolishness in standing that close to the edge of the roof."

The inquest had been convened in Dasein's hospital room—"because it is at the scene of the accident and as a convenience to Doctor Dasein, who is not fully recovered from injuries and shock."

A special investigator had been sent from the State Attorney General's office, arriving just before the inquest convened at ten a.m. The investigator, a William Garrity, obviously was known to Piaget. They had greeted each other "Bill" and "Larry" at the foot of Dasein's bed. Garrity was a small man with an appearance of fragility about him, sandy hair,

a narrow face immersed in a mask of diffidence.

Presiding was Santaroga's coroner, a Negro Dasein had not seen before this morning—Leroy Cos: kinky gray hair and a square, blocky face of remote dignity. He wore a black suit, had held himself apart from the pre-inquest bustle until the tick of ten o'clock when he had seated himself at a table provided for him, rapped once with a pencil and said: "We will now come to order."

Spectators and witnesses had seated themselves in folding chairs brought in for the occasion. Garrity shared a table with an assistant district attorney who, it developed, was a Nis, Swarthout Nis, a man with the family's heavy eyelids, wide mouth and sandy hair, but without the deeply cleft chin.

In the two days since the tragedy, Dasein had found his emotions embroiled with a growing anger against Seldaor—*the fool, the damned fool, getting himself killed that way.*

Piaget, seated in the witness chair, summed it up for Dasein.

"In the first place," Piaget said, a look of stern indignation on his round face, "he had no business taking Doctor Dasein outside. I had explained Doctor Dasein's physical condition quite clearly."

Garrity, the State's investigator, was permitted a question:

"You saw the accident, Doctor Piaget?"

"Yes. Mr. Burdeaux, having noted Doctor Selador wheel my patient onto the sun deck and knowing I considered this a physical strain on my patient, had summoned me. I arrived just in time to see Doctor Selador stumble and fall."

"You saw him stumble?" Swarthout Nis asked.

"Definitely. He appeared to be reaching for the back of Doctor Dasein's wheelchair. I consider it fortunate he did not manage to grab the chair. He could have taken both of them over the edge."

*Selador stumbled? Dasein thought. A sense of opening relief pervaded him. Selador stumbled! I didn't bump him. I knew I wasn't strong enough. But what did I bump? A loose board on the deck, perhaps? For an instant, Dasein recalled his hands on the wheels of the chair, the firm, sure grip, the soft bump. A board could feel soft, he told himself.*

Burdeaux was in the witness chair now corroborating Piaget's testimony.

It must be true then.

Dasein felt strength flow through his body. He began to see his Santaroga experience as a series of plunges down precipitous rapids. Each plunge had left him weaker until the final plunge had, through a mystic fusion, put him in contact with a source

of infinite strength. It was that strength he felt now.

His life before Santaroga took on the aspects of a delicate myth held fleetingly in the mind. It was a tree in a Chinese landscape seen dimly through pastel mists. He sensed he had fallen somehow into a sequel which by its very existence had changed the past. But the present, here-and-now, surrounded him like the trunk of a sturdy redwood, firmly rooted, supporting strong branches of sanity and reason.

Garrity with his sleepy questions was a futile incompetent. "You ran immediately to Dr. Dasein's side?"

"Yes, sir. He was quite ill and weak. I was afraid he might try to get out of the wheelchair and fall himself."

"And Dr. Piaget?"

"He ran downstairs, sir, to see what he could do for the man who fell."

Only the Santarogans in this room were fully conscious, Dasein thought. It occurred to him then that the more consciousness he acquired, the greater must be his unconscious content—a natural matter of balance. That would be the source of Santaroga's mutual strength. Of course—a shared foundation into which each part must fit.

"Doctor Dasein," the coroner said.

They swore Dasein in then. The eyes in the room turned toward

him. Only Garrity's eyes bothered Dasein—hooded, remote, concealing, *outsider* eyes.

"Did you see Dr. Selador fall?"

"I . . . Mr. Burdeaux called me. I turned toward him and I heard a cry. When I turned back . . . Doctor Selador's feet were going over the edge."

"His feet?"

"That's all I saw."

Dasein closed his eyes, remembering that moment of electric terror. He felt he was using a tunnel-vision effect in his memory, focusing just on those feet. An accident—a terrible accident. He opened his eyes, shut off the vision before memory reproduced that descending wail, the final punctuating thud.

"Had you known Dr. Selador for a long time?"

"He was . . . yes." What was Garrity driving at from behind those hooded eyes?

Garrity produced a sheet of paper from a briefcase on his table, glanced at it, said: "I have here a page from Dr. Selador's journal. It was forwarded to me by his wife. One passage interests me. I'll read it to . . ."

"Is this pertinent?" Coroner Cos asked.

"Perhaps not, sir," Garrity said. "Again, perhaps it is. I would like Dr. Dasein's views. We are, after all, merely trying to arrive at the truth in a terrible tragedy."

"May I see the passage?" That

was Swarthout Nis, the assistant district attorney, his voice suavely questioning.

"Certainly."

Nis took the paper, read it.

*What is it?* Dasein asked himself. *What did Selador write that his wife would send to a state investigator? Is this why Garrity came?*

Nis returned the paper to Garrity. "Keeping in mind that Dr. Selador was a psychiatrist, this passage could have many interpretations. I see no reason why Dr. Dasein shouldn't have the opportunity to throw light upon it, however—if he can."

"May I see this?" the coroner asked.

Garrity stood, took the paper to Cos, waited while the coroner read it.

"Very well," Cos said, returning the paper to Garrity. "The passage you've marked in red pencil presumably is what concerns you. You may question the witness about that passage if you wish."

Garrity turned, the paper held stiffly before him, faced Dasein. With occasional glances at the page, he read: "Dasein—a dangerous instrument for this project. They should be warned."

He lowered the paper. "What project, Dr. Dasein?"

There was a hush in the room as thick as fog.

"I . . . when did he write this?"

"According to his wife, it's

dated approximately a month ago. I repeat: what project?"

Dasein groped in his memory. *Project . . . dangerous?*

"The . . . only project . . ." He shook his head. The passage made no sense.

"Why did you come to Santaroga, Dr. Dasein?"

"Why? My fiancée lives here."

"Your fiancée . . ."

"My niece, Jenny Sorge," Piaget interposed.

Garrity glanced at Piaget who sat now in the front row of chairs, looked back to Dasein. "Didn't you come here to make a market survey?"

"Oh, that—yes. But I don't see how I could be dangerous to that . . ." Dasein hesitated, weighing the time nicely. ". . . unless he was afraid I'd have my mind too much on other things."

A soft rustle of laughter whispered through the room. The coroner rapped his pencil, said: "I remind you this is a serious occasion. A man has died."

Silence.

Garrity looked once more to the page in his hand. The paper seemed to have gained weight, pulling down.

"What else is on that page from his journal?" Dasein asked. "Doesn't it explain what . . ."

"Who are the *they* who should be warned?" Garrity asked.

Dasein shook his head. "I don't know—unless it could be the peo-

ple who hired us for the market study."

"You have prepared such a study?"

"I'll complete it as soon as I'm well enough to be released from the hospital."

"Your injuries," Garrity said, a note of anger in his voice. "Something was said about burns. I'm not at all clear about . . ."

"Just a moment, please," the coroner said. "Dr. Dasein's injuries are not at issue here in any way other than how they bear on his being in a particular place at a particular time. We have had testimony that he was very weak and that Dr. Selador had wheeled Dr. Dasein's wheelchair out onto the sun deck."

"How weak?" Garrity asked. "And how dangerous?"

The coroner sighed, glanced at Piaget, at Dasein, back to Garrity. "The facts surrounding Dr. Dasein's injuries are common knowledge in Santaroga, Mr. Garrity. There were more than a dozen witnesses. He was severely burned while saving a man's life. Dr. Dasein is somewhat of a hero in Santaroga."

"Oh." Garrity returned to his seat at the table, put the page from Selador's journal on the briefcase. He obviously was angry, confused.

"I permit a considerable degree of informality in an inquiry such as this," Cos said. "Dr. Dasein

has asked a question about the surrounding contents of that page. I confess the entries make no sense to me, but perhaps . . .” The coroner left his question hanging there, his attention on Garrity.

“My office can add little,” Garrity said. “There’s an entry which obviously is a population figure; it’s so labeled. There’s a line . . .” He lifted the page. “‘Oil company checked out. Negative.’ There’s a rather cryptic: ‘Nomenal illness.’ Except for the one entry referring to Dr. Dasein . . .”

“What about the rest of the journal?” the coroner asked. “Has your office investigated it?”

“Unfortunately, Mrs. Selador says she obeyed her husband’s testamentary wishes and burned his journal. It contained, she said, confidential data on medical cases. This one entry she preserved and sent to us . . .” Garrity shrugged.

“I’m afraid the only man who could explain it is no longer living,” the coroner said. “If this was, however, a journal of medical data with reference to Dr. Selador’s psychiatric practice, then it would seem the entry in question might be explained easily in rather harmless terms. The word *dangerous* can have many interpretations in a psychiatric context. It may even be that Dr. Dasein’s interpretation is the correct one.”

Garrity nodded.

“Do you have any more questions?” the coroner asked.

“Yes. One more.” Garrity looked at Dasein, a veiled, uncertain look. “Were you and Dr. Selador on friendly terms?”

Dasein swallowed. “He was . . . my teacher . . . my friend. Ask anyone at Berkeley.”

A blank look of frustration came over Garrity’s face.

*He knows*, Dasein thought. And immediately he wondered what it was Garrity *could* know. There was nothing to know. An accident. Perhaps he knew Selador’s suspicions about Santaroga. But that was foolishness . . . unless Garrity were another of the investigators looking into things that were none of his business.

Dasein felt his vision blur and, staring at Garrity, saw the man’s face become a death’s head skull. The illusion vanished as Garrity shook his head, jammed Selador’s journal page into the briefcase. A rueful smile appeared on his face. He glanced at the coroner, shrugged.

“Something amuses you, Mr. Garrity?” the coroner asked.

The smile vanished.

“No, sir. Well . . . my own thought processes sometimes. I’ve obviously allowed an unhappy woman, Mrs. Selador, to send me on a wild goose chase.”

The investigator sat down, said: “I’ve no more questions, sir.”

Abruptly, Dasein experienced a moment of insight: Garrity’s



thoughts had frightened the man! He'd suspected a vast conspiracy here in Santaroga. But that was too fantastic; thus, the smile.

The coroner was closing his inquiry now—a brief summation: all the facts were in . . . an allusion to the pathologist's gory details—"massive head injuries, death instantaneous"—a notation that a formal inquest would be held at a date to be announced. Would Mr. Garrity wish to return for it? Mr. Garrity thought not.

It dawned on Dasein then that this had been a show for Garrity, something to set his mind at ease. Tiny bits of Piaget's pre-inquest conversation with Garrity returned to Dasein, fitted into a larger pattern. They'd been in school together—*Outside!* Of course: old friends, Larry and Bill. One didn't suspect old friends of conspiracy. Reasonable.

It was over then—death by misadventure, an accident.

Garrity was shaking hands with Coroner Cos, with Piaget. Would Piaget be coming out to their class reunion? If his practice permitted . . . but Garrity certainly must know how it was with country doctors. Garrity understood.

"This was a terrible thing," Garrity said.

Piaget sighed. "Yes, a terrible tragedy."

Garrity was pausing at the foyer door now. There were knots of

people behind him waiting for the elevator, a buzz of conversation. He turned, and Dasein thought he saw a look of angry speculation on the man's face.

Piaget bent over Dasein then shutting off the view of the door. "This has been a strain on you and I want you to get some rest now," Piaget said. "Jenny's coming in for a minute, but I don't want her staying too long."

He moved aside.

The foyer doorway stood open and empty.

"Understand?" Piaget asked.

"Yes . . . Jenny's coming."

*What was that look in Garrity's eyes?* Dasein asked himself. A black savage in Africa might have peered that way into a white man's shiny city. Strange . . . angry . . . frustrated man. If Meyer Davidson and his crew chose Garrity for an investigator—there'd be a dangerous one. That'd be a bridge to cross in its own time, though . . . if at all. Many things could happen to a man out there in the wide-wide world. Dasein could feel it—Santaroga was preparing itself to reach out there.

*That's why I was chosen, he thought. And Burdeaux . . . and the others . . . whoever they are. The only good defense is a good offense.*

This was a disturbing thought that sent trembling agitation through Dasein's stomach and legs.

*Why am I trembling?* he wondered.

He tried to recapture the thought that had disturbed him, failed. It was a brief, unimportant disturbance, a momentary ripple on a lake that otherwise was growing calmer and calmer. Dasein allowed the sensation of calm green waters to flow over and around him. He grew aware he was alone in the room with Jenny.

There was calmness personified: blue eyes with laugh wrinkles at their edges, full lips smiling at him. She wore an orange dress, an orange ribbon in her dark hair.

Jenny put a package on his night stand, bent over and kissed him — warm lips, a deep sense of peace and sharing. She pulled away, sat down beside him, held his hand.

Dasein thought she had never looked more beautiful.

"Uncle Larry says you're to rest this afternoon, but you can be released from the hospital by Saturday," she said.

Dasein reached out, ran his fingers through her hair — silky smooth, sensuous hair. "Why don't we get married Sunday?"

"Oh, Darling . . ."

Again, she kissed him, pulled back, looked prim. "I better not do that anymore today. We don't want to weaken you." The dimple flickered in her cheek. "You want

to be fully recovered and strong by Sunday."

Dasein pulled her head down against his neck, stroked her hair.

"We can have one of the houses in the new section," she whispered. "We'll be near Cal and Willa. Darling, darling, I'm so happy."

"So am I."

She began describing the house to him, the garden space, the view . . .

"You've chosen one of them already?"

"I was out there — dreaming, hoping . . ."

The house was everything she'd ever longed for — it was important for a woman to have the right house in which to begin life with the man she loved. There was even a big garage with room for a shop . . . and a lab.

Dasein thought of Jersey Hofstedder's car sitting in the garage she described. There was a sense of continuity in the thought, a pleasant complacency involving "good things" and "vintage crops."

His attention focused on the package Jenny had put on his night stand.

"What's in the package?"

"Package?"

She lifted her head, turned to follow the direction of his gaze.

"Oh, that. The gang at the Co-op — they put together a 'get-well' package for you."

"Jaspers?"

"Of course." She sat back, straightened her hair.

Dasein had a sudden vision of himself working in the wrapping line at the Co-op.

"Where will I work?" he asked.

"Uncle Larry wants you in the clinic, but we'll both get a month of honeymoon leave. Darling—it's going to be so long until Sunday."

*In the clinic, Dasein thought. Not as a patient, thank god.* He wondered then which god he was thanking. It was an odd thought, without beginning and without end, a bit of string hanging in the green lake of his mind.

Jenny began unwrapping the package on the nightstand—a wedge of golden cheese, two bottles of beer, dark wheat crackers, a white container that sloshed when she moved it. He wondered when they had been exposed.

Dasein had the sudden feeling he was a moth in a glass cage, a frantic thing fluttering against his barriers, lost, confused.

"Darling, I'm tiring you." Jenny put her hand on his forehead. It soothed him, calmed him. The moth of his emotions settled on a strong green limb. The limb was attached to a tree. He felt the trunk of the tree as though it were himself—strong, an infinite source of strength.

"When will I see you?" he asked.

"I'll come by in the morning."

She blew him a kiss, hesitated, bent over him—the sweet fragrance of Jaspers about her breath, a touch of lips.

Dasein stared after her until the foyer door closed.

A momentary anguish touched him, a fleeting sense that he'd lost his grip on reality, that this room was unreal without Jenny in it. Dasein grabbed a chunk of the golden cheese, stuffed it in his mouth, felt the soothing Jaspers presence, his awareness expanding, becoming firm and manageable.

*What's reality, anyway?* he asked himself. *It's as finite as a bit of cheese, as tainted by error as anything else with limits.*

He settled his mind firmly then onto thoughts of the home Jenny had described, pictured himself carrying her across the threshold—his wife. There'd be presents: Jaspers from 'the gang,' furniture . . . Santaroga took care of its own.

*It'll be a beautiful life, he thought. Beautiful . . . beautiful . . . beautiful . . .*

The End

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# TURNOVER POINT

By **ALFRED COPPEL**

*Every era in history has had its Pop Ganlon's. Along in years and not successful and not caring much anyway. A matter of living out their years, following an obscure path to oblivion.*

*It was that way in ancient Egypt, just as it will be when the Solar System shrinks to our size. And once in a while such men are given an opportunity to contribute to the society that has forgotten them. . . .*

POP GANLON was no hero — he was only a spaceman. A spaceman and a father. In fact, Pop was rather no-account, even in a profession that abounded with drifters. He had made a meagre living prospecting asteroids and

hauling light freight and an occasional passenger out in the Belt Region. Coffee and cakes, nothing more. Not many people knew Pop had a son in the Patrol, and even fewer knew it when the boy was blasted to a cinder in a back alley in Lower Marsport.

Pop went on eating and breathing, but his life was over after that. He hit the bottle a little harder and his ship, *The Luck*, grew rustier and tackier, and those were the only outward signs that Pop Ganlon was a living dead man. He kept on grubbing among the cold rocks and pushing *The Luck* from Marsport to Callisto and back with whatever low-mass payloads he could pick up. He might have lived out his string of years like that, obscure and alone, if it hadn't been for John Kane. Kane was Pop Ganlon's ticket to a sort of personal immortality — if there is such a thing for an old spaceman.

It was in Yakki, down-canal from Marsport, that Kane found Pop. There is a small spaceport there — a boneyard, really — for buckets whose skippers can't pay the heavy tariff imposed by the big ramp. All the wrecks nest there while waiting hopefully for a payload or a grubstake. They have all of Solis Lacus for a landing field, and if they spill it doesn't matter much. The drifting red sands soon cover up the scattered shards of dural and the slow,

lonely life of Yakki goes on like before.

The Patrol was on Kane's trail and the blaster in his hand was still warm when he shoved it up against Pop Ganlon's ribs and made his proposition.

He wanted to get off Mars — out to Callisto. To Blackwater, to Ley's Landing, it didn't matter too much. Just off Mars, and quickly. His eyes had a metallic glitter and his hand was rock-steady. Pop knew he meant what he said when he told him life was cheap. Someone else's life, not Kane's.

That's how it happened that *The Luck* lifted that night from Yakki, outward bound for Ley's Landing, with Pop and Kane aboard her alone.

Sitting at the battered console of *The Luck*, Pop watched his passenger. He knew Kane, of course. Or rather, he knew of him. A killer. The kind that thrives and grows fat on the frontiers. The bulky frame, the cropped black hair, the predatory eyes that looked like two blaster muzzles. They were all familiar to Pop. Kane was all steel and meanness. The kind of carrion bird that took what others had worked for. Not big time, you understand. In another age he'd have been a torpedo — a hireling killer. But out among the stars he was working for himself. And doing well.

Pop didn't care. His loyalty to the Patrol had stopped quite suddenly not long before — in a dark alley in Lower Marsport. This was only a job, he told himself now. A job for coffee and cakes, and maybe a grubstake to work a few more lonely rocks. Life had become a habit for Pop, even if living had ended.

"What are you staring at, Pop?" Kane's voice was like the rest of him. Harsh and cold as space itself.

"At you, I guess," Pop said, "I was wondering what you'd done — and where — and to whom."

"You're a nose old man," Kane said. "Just get me to Ley's Landing. That's what I'm paying for, not a thing more."

Pop nodded slowly and turned back to the control board. They were above the Belt by now, and a few short hours from turnover point. The cranky drives of *The Luck* needed all his attention.

Presently he said, "We'll be turning over soon. Want to get some rest?"

Kane laughed. "No thanks, old man. I'll stay here and watch you."

Pop eyed the ready blaster and nodded again. He wondered vaguely how it would feel to die under the blast of such a weapon. It couldn't be very painful. He hoped it wasn't painful. Perhaps the boy hadn't suffered. It would

be nice to be sure, he thought.

There wasn't much for Pop to remember about the boy. He'd never been one for writing many letters. But the District Patrolman had come down to Yakki and looked Pop up — afterward. He'd said the boy was a good officer. A good cop. Died doing his job, and all that sort of thing. Pop swallowed hard. His job. What had 'his job' been that night in Lower Marsport, he wondered. Had someone else finished it for him?

He remembered about that time hearing on the Mars Radio that a Triangle Post Office had been knocked over by a gunman. That might have been it. The Patrol would be after anyone knocking over EMV Triangle property. The Earth-Mars-Venus Government supported the Patrol for things like that.

Pop guided *The Luck* skillfully above the Belt, avoiding with practiced ease the few errant chunks of rock that hurtled up out of the swarms. He talked to Kane because he was starved for talk — certainly not because he was trying to play Sherlock. Pop had long ago realized that he was no mental giant. Besides, he owed the Patrol nothing. Not a damned thing.

"Made this trip often?" Pop tried to strike up a conversation with Kane. His long loneliness seemed sharper, somehow, more

poignant, when he actually had someone to talk to.

"Not often. I'm no space pig." It was said with scorn.

"There's a lot of spacing, you know," Pop urged.

Kane shrugged. "I know easier ways to make a buck, old timer."

"Like how?"

"A nosey old man, like I said," Kane smiled. Somehow, the smile wasn't friendly. "Okay, Pop, since you ask. Like knocking off wacky old prospectors for their dust. Or sticking up sandcar caravans out in Syrtis. Who's the wiser? The red dust takes care of the leftovers."

Pop shook his head. "Not for me. There's the Patrol to think of."

Kane laughed. "Punks. Bell-boys. They'd better learn to shoot before they leave their school-books."

Pop Ganlon frowned slightly. "You talk big, mister."

Kane's eyes took on that metallic glitter again. He leaned forward and threw a canvas packet on the console. It spilled crisp new EMV certificates. Large ones. "I take big, too," he said.

Pop stared. Not at the money. It was more than he had ever seen in one pile before, but it wasn't that that shook him. It was the canvas packet. It was marked: *Postal Service, EMV*. Pop suddenly felt cold, as though an icy wind had touched him.

"You . . . you killed a Patrolman for this," he said slowly.

"That's right, Pop," grinned Kane easily. "Burned him down in an alley in Lower Marsport. It was like taking candy from a baby. . . ."

Pop Ganlon swallowed hard. "Like taking candy from a . . . baby. As easy as that. . . ."

"As easy as that, old man," Kane said.

Pop knew he was going to die then. He knew Kane would blast him right after turnover point, and he knew fear. He felt something else, too. Something that was new to him. Hate. An icy hate that left him shaken and weak.

So the boy's job hadn't been finished. It was still to do.

There was no use in dreaming of killing Kane. Pop was old. Kane was young — and a killer. Pop was alone and without weapons — save *The Luck*. . . .

Time passed slowly. Outside, the night of deep space keened soundlessly. The stars burned bright, alien and strange. It was time, thought Pop bleakly. Time to turn *The Luck*.

"Turnover point," he said softly.

Kane motioned with his blaster. "Get at it."

Pop began winding the fly-wheel. It made a whirring sound in the confined space of the tiny



control room. Outside, the night began to pivot slowly.

"We have to turn end-for-end," Pop said. That way we can decelerate on the drop into Callisto. But, of course, you know all about that, Mr. Kane."

"I told you I'm no space pig," Kane said brusquely. "I can handle a landing and maybe a takeoff, but the rest of it I leave for the boatmen. Like you, Pop."

Pop spun the flywheel in silence, listening to the soft whirr. Presently, he let the wheel slow and then stop. He straightened and looked up at Kane. The blaster muzzle was six inches from his belly. He swallowed against the dryness in his throat.

"You . . . you're going to kill me," Pop said. It wasn't a question. Kane smiled, showing white teeth.

"I . . . I know you are," Pop said unsteadily. "But first, I want to say something to you."

"Talk, old timer," Kane said. "But not too much."

"That boy—that boy you killed in Marsport. He was my son," Pop said.

Kane's face did not change expression. "Okay. So what?"

Pop's lips twitched. "I just wanted to hear you say it." He looked at the impassive face of the killer. "You made a mistake, Mr. Kane. You shouldn't have done that to my boy."

"Is that all?"

Pop nodded slowly. "I guess that's all."

Kane grinned. "Afraid, old man?"

"I'm a space pig," Pop said. "Space takes care of its own."

"You're in a bad way, old timer," Kane said, "and you haven't much sense. I'm doing you a favor."

Pop lifted his hands in an instinctive gesture of futile protection as the blaster erupted flame.

There was a smell in the control room like burnt meat as Kane holstered his weapon and turned the old man over with a foot. Pop was a blackened mass. Kane dragged him to the valve and jet-tisoned the body into space.

Alone among the stars, *The Luck* moved across the velvet night. The steady beat of flame from her tubes was a tiny spark of man-made vengeance on the face of the deeps.

From her turnover point, she drove outward toward the spinning Jovian moons. For a short while she could be seen from the EMV Observatory on Callisto, but very soon she faded into the outer darkness.

Much later, the Observatory at Land's End on Triton watched her heading past the gibbous mass of Pluto—out into the interstellar fastnesses.

The thrumming of the jets was

still at last. A wild-eyed thing that may once have been a man stared in horror at the fading light of the yellow star far astern.

It had taken Kane time to understand what had happened to him, and now it was too late. Space had taken care of its own. The air in *The Luck* was growing foul and the food was gone. Death hung in the fetid atmosphere of the tiny control room.

The old man — the boy — the money. They all seemed to spin in a narrowing circle. Kane wanted suddenly to shriek with laughter. A circle. The turnover circle. The full circle that the old man had

made instead of the proper half-turn of a turnover. Three hundred sixty degrees instead of one hundred eighty. Three hundred sixty degrees to leave the nose of *The Luck* pointing outward toward the stars, instead of properly toward the Sun. A full circle to pile G on G until the Jovian moons were missed, and the Uranian moons and Triton, too. *Ad Astra per Ardua*. . . .

With the last fragment of his failing sanity, Kane thought of how Pop Ganlon and the boy must be laughing. He was still thinking that as the long night closed in around him.

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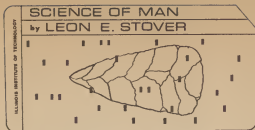
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B. Paid Circulation		
1. Sales through Dealers and Carriers, street vendors and counter sales	38,513	37,326
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C. Total Paid Circulation	47,958	46,347
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Sol Cohen, Publisher



## NEANDERTHALS, RICKETS and MODERN TECHNOLOGY

Had some prehistoric department of Health and Welfare required the label below to be sewn into Neanderthal clothing, perhaps the race would not have died out. As it was, no warning was possible to give. The Neanderthals wore clothing in all innocence of the terrible consequences of their sartorial technology. There is every reason to believe that Neanderthal Man died out of rickets as a consequence of bundling up his children in furs against the glacial cold.

**CAUTION: FUR GARMENT  
WEARING MAY BE  
HAZARDOUS TO  
YOUR HEALTH**

If Neanderthal Man suffered rickets of epidemic proportions, as seems to be the case, then he somehow lacked enough vitamin D, the sunshine vitamin. Vitamin D is a calcifying agent.

All land mammals need vitamin D, which they produce by biosynthesis within their bodies. Animals covered with fur or hair produce vitamin D in their body oils which are then licked or preened from the fur and ingested. Man, a naked animal, obtains vitamin D directly from within his body. In both cases, vitamin D

is produced under the stimulation of ultraviolet light (UV).

The wave lengths of solar radiation, as measured in angstrom units, are divided by astronomers into three continuous segments:

24,000-7,000 A infra-red; heat only  
7,700-3,900 A visible light  
3,900-2,900 A invisible UV radiation

In addition to allowing the synthesis of vitamin D when human skin is exposed to UV radiation, it also tans and may even burn human skin.

Just as too much solar UV may cause sunburn, so too may excessive amounts of the sunshine vitamin cause trouble. Too much vitamin D can be just as troublesome as too little. Rickets is a symptom of too little. The specific cure for this condition is cod-liver oil or vitamin D in fortified foods or in pill form. Too much of the vitamin leads to a condition known as hypervitaminosis which is fatal. Death follows upon a renal condition whose painful symptom is the formation of kidney stones. The calcifying power of the sun may be overdone as well as underdone. The human body simply cannot cope with toxic doses of vitamin D, whether absorbed from,

food or generated by solar radiation. Nor can it make up for a deficiency.

Lacking the chemical aids of modern times, man had to hold his ground like a plant, rooted to lands that provided just the right amount of sunshine for his local adaptation. UV radiation varies with latitude, yet man is a global species.

Sunlight strikes the outer atmosphere of the earth with equal intensity all over the globe. But the amount of sunlight that reaches the ground below depends on the latitude north or south of the equator. Since at the equator the sun's rays come almost straight down it has less atmosphere to go through. Away from the equator the light slices through the air at an angle—instead of coming straight down from the top—therefore has more atmosphere to penetrate. And our atmosphere absorbs UV radiation. The further the light travels the more gets absorbed. So a man standing at 70° north latitude gets about one-third as much UV as would a man at the equator, given the same atmospheric conditions and the same lack of forest cover which will also absorb UV. Therefore the wide, open grasslands of equatorial Africa receives the greatest penetration and the greatest amount of UV.

These variations in UV penetration are quite sufficient to cause disabilities in man at either extreme—were it not for the fact that different racial populations of men, over long periods of evolutionary history, have adapted to the extremes. A native white European would die of hypervitaminosis if transplanted without artificial body covering to an equatorial plains environment. And before the advent in this century of milk and other foods arti-

ficially fortified with vitamin D, negroes from equatorial Africa could not live north of 40 degrees of latitude without being crippled by rickets.

It so happens that mankind evolved in the area of earth's greatest penetration of solar UV. Man's home is Negro Africa. This evolution was accompanied by an ecological shift from a forest to a plains environment—the long lost story of man is just now coming more fully to light. It will be a story worth telling in a later column.

For the moment, allow that man has made it onto the plains. At that time he was not man as we know him today, fully erect and full brained. He was a species of ape-man (genus *Australopithecus*), a small-brained, two-legged scavenger. He was naked. He scavenged in packs. He competed with the great cats and other four-legged carnivores on the plains because all these hunted either at dawn or dusk. The ape-men scavenged under the noon-day sun while their furbound, sweatless enemies slept. Hence it is assumed the ape-men were hairless. How else were they to bleed off the metabolic heat they generated in their activities during the daylight hours? Hairless and sweating, the ape-men received UV radiation directly on their skin. Unlike their hairy ancestors of the forest, the ape-men did not receive their ration of vitamin D by means of licking off body oils. Like all living men today, they got their sunshine vitamin instead as a result of the irradiation by UV rays of ergosterol, a chemical component of the fatty layer of tissue under the human skin.

There is every reason to believe that the ape-men, in their necessary naked-

ness, were dark in their skin pigmentation. So too must have been their human descendants in Africa, who evolved out of the ape-men.

The human descendants of the apemen were so much more successful at scavenging and hunting—the advantage of genus *Homo* lay in a bigger stride and a bigger brain—that they spread out of Africa into Europe, West Asia and all the way to the Far East.

The history of man in the European peninsula, from his earliest known appearance there until the present, may be outlined as follows:

Date before present	Species and subspecies
0-35,000 BP	Modern Europeans
35,000-100,000 BP	<i>Homo sapiens neanderthalensis</i>
100,000-200,000 BP	<i>Homo sapiens steinheimensis</i>
- 550,000-900,000 BP	<i>Homo erectus heidelbergensis</i>

All of these lived north of 40° of latitude where the winter sun sits less than 20° above the horizon. Having originated in the tropics, where too much UV radiation was the danger, man had expanded northward to occupy lands above the Mediterranean where too little UV was the danger.

Adaptation to extremes of ultraviolet light in humans takes place by means of permanent skin pigmentation. The darker the skin, the more UV is reflected—or put another way, the less UV is transmitted to the subcutaneous regions of the skin. And the less UV transmitted, the less vitamin D is synthesized. Careful measure-

ments have shown that among Africans south of the Sahara, only 18% of incident UV is transmitted, while for untanned Europeans, 64% is transmitted. These are average figures, but none of the specific instances overlap.

The problem for populations of Pleistocene men moving north of 40° latitude was adaptation to dim ultraviolet light. Natural selection worked to select light skin. Dark skinned babies would have been given to bowlegs, knock-knees and twisted spines, adults to a soft and pliable bone structure. Women would suffer pelvic deformities that would have created hazards to mother and infant at childbirth. But lighter skinned offspring would have survived as healthy children and reproductive adults.

By 100,000 BP, man in Europe had been adapted to dim ultraviolet light for not much less than a million years, at least. At that time Neanderthal Man comes on stage. He is often pictured as a dark, hairy, dim-witted subhuman. This image may be valuable for literary purposes, as it has been from H.G. Wells's *The Grisley Folk* to William Golding's *The Inheritors*, but it is certainly very wrong. Neanderthal Man was white, hairless, and certainly as intelligent as our own kind. The proof of this last is the fact that he wiped himself out with the same over-application of skills which now endanger us: technological over-commitment.

Up until the advent of the Neanderthals, man in Europe had lived under the benign temperatures of a warm interglacial period—the Third Interglacial, to be precise. It was the fate of Neanderthal Man to face up to the Fourth Glacial advance, to the chilling cold of the Wurm glaciation. They did

so with admirable technical skill. They invented clothing. They bundled up their children in furs. Their race died.

So it was that naked men out of Africa successfully adapted to higher latitudes with the innate wisdom of their bodies and the selective processes of nature. When the great cold descended, the Neanderthals exercised the wisdom of their brains and adapted to the changed situation by means of technological innovation. Their solution was too good.

Under conditions of reduced ultraviolet light, total exposure of Neanderthal Man's depigmented skin allowed a sufficient level of vitamin D synthesis to be maintained in him. White skin is adaptive where UV is largely filtered out by the heavier atmospheric blanket through which the northern sun must slant.

But artificial body cover in defense against the harsh, damp cold of Ice Age Europe had the effect of restoring dark pigmentation to the skin of the Neanderthals. The effect of clothing was the same as if Africans had been transported to Europe before the days of vitamin pills and fortified foods. Fur garments shut off the irradiation of body chemicals necessary to produce the vitamin D even more surely than black skin.

What could be more disastrous to a Paleolithic people than endemic rickets? Rickets crippled the ability of Neanderthals to hunt game when they became adults.

The technical solution of the Neanderthals to glacial cold worked very well in the short run. In the long run it meant suicide. But of course, there were men living elsewhere to carry on the human race and to repopulate Eur-

ope after the Wurm ice had retreated . . .

If there is a moral here, it is not the one usually appealed to in the extinction of the dinosaurs. The great reptiles disappeared from the earth some hundreds of millions of years ago owing to their narrow range of ecological adaptation. They were too specialized. A slight shift of planetary temperature altered the vegetative cover which removed certain edible plants from the diet of the herbivores, which in turn were taken from the diet of the great carnivores.

The case of Neanderthal Man is quite the opposite. Like all mankind, he rather showed great flexibility in responding to his environment. His difficulty was an inability to foresee and guard against the consequences of his splendid technology. He hunted big game out of a base camp marked by fire and hearth, employing diversified weapons. His tool kit included skin scrapers, for the fleshing of animal skins which he fashioned into clothing with yet another set of tools. Everything in this complex of material and organizational traits fitted together; yet somehow it fell apart. How could he have known that clothing would create more problems than it solved? How could he know that he had overextended his technology?

We in the United States of America face a similar problem of technological overextension. Of course, if we do not recognize, meet and survive the problem there are other human societies in the world to carry on at the level of material progress we could have achieved . . .

Sometime around 1950, a profound

change took place in our society. By that time we already had run the course of industrialization and had embarked on what Daniel Bell, Chairman of the Department of Sociology at Columbia University, calls a "post-industrial society."

The post-industrial society is our technological response to an equivalent of Neanderthal Man's Ice Age. The Ice Age of Pleistocene times was a natural event. What we are facing is a man-made event, but the adjustment required is no less demanding.

Glacial ice moves slowly. The Neanderthals had time to prepare their response to the coming cold. So, too, have things been creeping up on us; our response took place in the 1950's.

Ever since portions of mankind left hunting for a settled way of life based on agriculture and town life, farmers, craftsmen and other laborers formed almost the complete population of the ancient civilizations. Priests, scribes, philosophers, astronomers, engineers and scientists were few in number. The industrial revolution changed that age-old balance of skills.

Changes in the levels of skills in the U.S. labor force first became visible from the start of this century. Below are changes noted in rounded out percentage points of increase or decrease of workers in each category against the total labor force.

	1900 (30 mil- lion	1950 (60 mil- lion	1975 (90 mil- lion
agricultural	41	13	4
blue collar	37	40	33
white collar	18	39	48
professional	4	8	15

The future is written in the statistics of 1950, which mark a change of revolutionary significance in world history. In 1950, white collar and professional workers accounted for almost exactly one half of the United States labor force. (By now, they already account for *more* than half!) This is the first time in the history of any civilization that farmers, craftsmen and laborers have not constituted the major work segment of society.

The industrial revolution is simply a name for a process by which production can be upped, by means of power machinery, with an actual reduction of production workers. But machinery is not everything. Industry went hand in hand with the invention of new forms of social organization, such as the joint stock company and the corporation, at the cost of much paper work and managerial discipline. By 1975, supervisors and clerical and sales workers will outnumber producers in both field and factory.

Our new industrial organizations have increased their employment of scientists, engineers and other technically trained people. Not only that. Business executives themselves are more and more training in technical fields—primarily science and engineering. Fewer and fewer of them come to management positions with an occupational background in banking or law.

We have been brought, at last, to a critical turning point. Critical because from now on it will be impossible to maintain our technical dominance without further extending our commitment to technological development. There lies the danger of the post-industrial revolution.

The essence of the post-industrial revolution is that we must draw upon more and yet increasingly more technological brainpower just to keep us going. The Red Queen put it to Alice this way:

*"Well, in our country," said Alice, still panting a little, "you'd generally get to somewhere else—if you ran very fast for a long time as we've been doing."*

*"A slow sort of country!" said the Queen. "Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run twice as fast as that."*

This often quoted passage from *Through the Looking Glass* is so relevant that laughter at it might very well be turned into profitable tears. When the ice crept down on Neanderthal Man, he devised clothing. Against the creeping advance of a technological way of life, we are erecting still more technology.

It is no accident that the development of radar, rockets and atomic weaponry surged forward between 1940 and 1956. World War II was but the trigger which released a flood of technical manpower looking for employment. It was during that time—1946 to be exact—that the first electronic computer, ANIAC, was designed and built. From this time onward we have been plunged into a super-technological civilization. From 1956 the demand for technical brainpower has rushed apace with the adventure of the missile and space race, with the development of solid state physics, with the widening application of computers, and with the adoption of the fiscal, medical and technical complications of Medicare.

This is not to hit at science and technology, the very instrument of our material progress. It is to say that everything that *can* be done technically is not, by definition, progressive. Choices must be made.

For example, should we go ahead with super-sonic transport or an anti-ballistic missile system? What about continuation of our space program? These, in the future, will raise the demand for technically trained manpower to even higher levels than before. Can we sustain this growth? That is to ask, can we educate the necessary engineering and scientific brainpower?

For the year 2000 we may predict a doubled population, a tripled consumption of energy, and a quadrupled gross national product. Can we upgrade enough manpower to meet the brainpower needs these trends call for? The answer is, certainly not.

At this very moment, only 70% of the occupational openings for engineers and scientists is being filled. The demands of the post-industrial society are ever increasing, and are sure to outgrow supply by an ever widening gap. It takes at least 22 years to educate an engineer or scientist, and the plain fact of the matter is that there are not enough students in the educational pipeline—the interest must start early—to fill the projected needs.

One way to bridge the gap between supply and demand is to cancel research and development in certain lines that we would not otherwise pursue unless we had the trained manpower. We are thus forced to choose what it is that we want our science and technology applied to.

What we choose to do, please note, will have a decisive impact on the



world at large, which in turn will decide our own fate.

We participate in a worldwide communications network. Our technological affluence outruns the capacities of a hundred aspiring societies to even digest its significance, much less imitate it. To skilled, educated and ambitious persons the United States is an object of attraction. Here is to be placed the problem of the "brain drain," which deprives countries not yet arrived at a full or partial industrial society, much less its post-industrial take off. The brain drain widens the gap between the "have" and "have not" nations.

Worse yet, the international information community saddens those who cannot migrate. They learn about a way of life they learn to want but cannot admire. Technologically racing America is altering the world with its message of affluence. Peasants in Asia, Africa and Latin America hear the message on their transistors. Cheap radio receivers cover the earth, all of them tuned into channels advertising unreachable goals.

Are we to raise up underdeveloped lands by exporting our technologic affluence? Or are we to withhold information about ourselves from the

poverty cultures of the world?

These are hard questions and cannot be ducked. The science of death control has been extended to these poverty cultures, bringing them increased population growth but not the rest of the technology and quality of life that goes with that science and the people who flourish it on a global scale. It is a threatening situation, especially given the fact that the other great atomic power speaks for the "have not" nations. Already some of the "have not" nations have intimated that they might form an alliance against the lesser populated "have" nations. The war in Vietnam seems to be a part of that contest. So too is the class and race warfare in our own city streets.

Certainly there is no question that our technology is thoroughly embedded in the wider context of the nation's social, economic and political life. And these are international complications.

Neanderthal Man made no evaluation of the undesirable consequences of his technology. Unless we learn to engage in some sort of technology assessment, we shall find ourselves in very much the same kind of trouble.

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## **GREAT SCIENCE FICTION**

# THE FUTURE IN BOOKS



**THE ACCURSED**, Two Diabolical Tales, by Claude Seignolle, translated by Bernard Wall, Foreword by Lawrence Durrell (Coward-McCann, \$5.50)

Reviewed by **FRITZ LEIBER**

For the first six decades of this century, the descriptive adjective Gothic was believed by publishers to be a surer kiss of death for a book than even supernatural or fantastic, though for close to 200 years Gothic has been used literarily to describe stories featuring supernatural horror, ghosts, demons, witches, ancient castles, and often a lady in distress.

Then beginning with a trickle which became a flood in 1965, there have appeared a bewildering variety of books labeled Gothic Novels, Gothic Romances, and gothic Mysteries, mostly paperback, with Ace, Lancer, Paperback Library, and Pyramid the leading publishers.

The largest common denominator of these books is a stereotyped cover of great sales power (some are even labeled Best Seller on first printing). It depicts an apprehensive woman,

romantic more than sexy, and often in somewhat old-fashioned costume, though she may wear a respectable negligee. She stands well in front of a castle or large mansion, in the tower or top floor of which one window is lit. In the night sky there frequently rides the moon.

This cover is matched by titles such as **DARK MOON**, **LOST LADY**, **BLACKTOWER**, **SINISTER ABBEY**, **THE BROODING HOUSE**, **EVIL IN THE HOUSE**, **ENGRAVED IN EVIL**. The authors are mostly women, at least on the covers, for the copyrights sometimes shows a man's name. Certainly Marion Zimmer Bradley's truly gripping **CASTLE TERROR** is by a woman, and a fine science-fiction writer too.

But the majority of these novels, especially the newly-written ones, are as stereotyped as their covers. They follow the formula of *She Gets Lonely*, *She Gets Frightened*, *She Gets a Man*, or *She Meets a Stranger*, *She Meets Terror*, *She Meets Her Husband*. A typical cover-blurb is: "A missing sister and a mysterious

European Castle led Catherine Hume into a spiderweb of suspense, suspicion, and sudden romance." Supernatural touches show little skill or conviction and are often absent. The prototype, never equalled, is Daphne du Maurier's *Rebecca*. Yet by their booming sales these novels obviously provide as much desired emotional fodder as the nurse novel, probably for women nostalgic for radio Soap Opera and not finding enough of them on TV and screen, women understandably bored with the male-addressed (or undressed?) thriller—another stereotype.

As in any publishing goldrush, a number of books get reprinted, or, much more rarely, first-printed, which satisfy the new formula barely or not at all, though their covers are the new stereotype. Some of these may be excellent. In 1965, riding the Gothic tide, Berkley rapidly reissued several of the finely-wrought, eerie, period crime-novels of Joseph Shearing, who as Marjorie Bowen wrote in 1909 the brooding medieval horror-romance *Black Magic*; her real name is Gabrielle Margaret Long. There have reappeared the competent mystery-thrillers of Mabel Seeley (Remember *The Listening House*?) and Ethel Lina White, whose *The Wheels Spin* gave Hitchcock on a platter his very successful *The Lady Vanishes*, exactly as Robert Bloch's book gave him *Psycho*.

There has also been reprinted the excellent recent genuine Gothic, *The House of Mist*, by the talented South-American Maria Luisa Bombal. The quality paperback houses have begun to reissue the works of Sheridan Le Fanu and other last-century greats. One can hope for (or perhaps I've missed them) reprints of such mag-

nificent disguised Gothics as Dorothy Hughes' *The So-Blue Marble*, Alexander Laing's *The Cadaver of Gideon Wyck*, and *The Witching Night* by C. S. Cody (Nelson Algren?)

But now we are at last approaching the true Gothic or supernatural-horror story, of which there are two sorts:

Some s-h stories ask, "Can such things be?" They work up from the commonplace through disquieting hints and a mounting eerie atmosphere to one moment of stark terror: there sounds on a windy door the characteristic signal-knock of a man newly-buried; in moonlit dark a skeptical Oxford don struggles briefly against a malevolent figure and face formed of crumpled bed-linen; a prosy New Englander notes that the photograph from which a sinister fantasy artist was painting a ghoul is unmistakably a photograph from life.

Other s-h stories assert, "Such things are! So let's go it whole hog." These pile their supernatural horrors atop natural, human, and Psychopathic ones—anything to maximize the shock. There is generally a great deal of cruelty, wincing details, and nowadays considerable lively sex.

The first type of story aims to make a sensitive, intelligent reader question for a deliciously scary moment the stable, science-proved foundations of the world in which he trusts. The second provides a feast of grue for those who relish such banquet.

On the whole, Seignolle's two short novels are of the second sort. His closest literary relatives are the Hans Heinz Ewers of *The Sorcerer's Apprentice* and *Alraune* and the Guy Endore of *The Werewolf of Paris*.

Seignolle's characters are French

farmers of the selfish, insensitive, miserly, suspicious, superstitious, lustful, bigoted, brutal breed made familiar by Zola and de Maupassant. There are no wise, scholarly, skeptical, sympathetic persons (the author included) to weigh what, if anything, is going on in the supernatural line—how much is real, how much is mania and delusion.

There is a lot of uncomfortable landscape and weather, described animistically: "The cold buried its huge icy fingers deep in the soil. In the wood its frolics gave rise to dull pain in the tall trees whose branches had already been tormented by summer lightning and the rage of autumn winds. The tender flesh of young pine-trees split open with dry sonorous cries."

Sensations, such as a thud in another room, are noted violently: "It fell direct on his heart; it struck him as if he was laid out flat on an anvil."

So are emotions: "Then came a sensation as if a steel blade had entered his stomach and was cutting it with little jabs of fear as far as his loins." "Fear had dug a furrow from the nape of his neck to the small of his back, and from his throat to his stomach."

Dreams are grisly: "A lizard came to taste the dried blood in his ear-holes."

Wounds are ghastly: "The cutting edge had opened up his lips and cheek. His eye had burst, and there flowed a thick liquid from it, mixed with the pumping blood. The dust and dirt of the farmyard increased the horror of the wound." Note that last. Seignolle sprinkles his pages liberally with prickles, thistles, bluebottle flies, and manure dust.

Even conversation is lethal: "The words poured from his mouth like gunshots and each caused a fresh wound in Marie."

Both short novels are set about 75 years ago and each contains, sometimes confusingly, a background story occurring some 20 years earlier. The pre-Freudian setting has its obvious advantages, but note that most masters of the s-h story, such as Machen, Blackwood, Lovecraft, and Montague Rhodes James, used contemporary settings.

The heroines of both novels are teen-age girls, the one afflicted with pyromania, the other lycanthropy. *Malvenu* sets her story going by rising one stifling August night, undoing the front buttons of her linen night-dress, and impulsively setting fire to the huge haystack which dominates the farm. Later she promises to give herself to her boyfriend if he will burn down his parents' home. Then she forgets and sleeps with him before hand, but he goes on to commit the arson anyhow.

*Marie the Wolf* begins her tale by trying to run down a deer, "leaping with the agility of the panic-stricken animal itself." Thereafter she seeks with a notable lack of success to convince folks she isn't a werewolf and to protect her boyfriend, who has for her sake been stabbing people with a filth-crusted pitchfork.

Both girls, after much suffering and wild exaltation, come to extremely sticky ends, somewhat like Justine in the Marquis de Sade's famous pornographic novel.

There are supernatural or at least ghoulish forces at work: in *Malvenue* a pre-Christian fertility statue whose broken-off head keeps trying to bump its way back to its body; in *Marie*

*the Wolf* the curious figure of a wolf-drover, a wild man who lives in the woods with half-tamed wolves and by their threat extorts food from peasants. But there are no firm explanations; violent emotion and sensations are all.

I don't personally care much for such stories, yet perhaps they are better deserved (than the "Can such things be?" tales) by our age with its napalm, atomic bombs, unlimited guerilla and anti-guerilla warfare, its anti-intellectual philosophies such as Zen and Existentialism, its yearning for gurus and black magicians, its efforts to "turn off their heads" and recapture primitive ecstasies and tribal communion with drugs, wild music, art of incongruity, psychedelic lights, and street-roving uneasy and watchful as a jungle sneak.

The difference is most humorously sharp for me when I contrast (I quote Lovecraft) "the scholarly Montague Rhodes James, Provost of Eton College, antiquary of note, and recognized authority on mediaeval manuscripts and cathedral history" with Seignolle's "I am a friend of many magicians, alchemists and sorcerers. We understand each other, and I have learned from them—too much perhaps in the eyes of some other friends, who have seen me changed into a toad. I am *sorcier d'honneur* of a damned village, and maybe people think I am the Devil himself." In which direction is time moving?

**LORD OF LIGHT** by Roger Zelazny (Doubleday, \$4.95)

reviewed by LEROY TANNER

I must admit that this volume disturbed me in a rather physical manner, producing a scratchy sensation not un-

like that of a bath sponge being drawn through my large intestines on a cord. I mentioned this to my colleague, C.C. Shackleton, who kindly consented to read it on the spot, which he did, although he dropped it into the coal hod before he had finished a chapter. "All decoration and no form, dear boy," he sighed. "All I could find were words." And, by heavens, Charles Charleston was right, as I discovered when, after dusting the book briefly, I opened it once again.

This novel apparently takes place on a distant and future planet where the Hindu Pantheon rule in both their physical and spiritual attributes, although it is presently made clear that these gods are really human though they do have immense physical and mental powers, immortality and that sort of thing. Quite a nice idea in fact, which the author has succeeded in burying under a weight of improbable language the like of which I have not read since last I plucked a Yank mag from the penny bin in Woolworth's. ("Pulp" magazines I believe you call them.) For instance, "His heart leapt within his hairy breast." *He* is sort of an ape creature, which explains the hirsuteness of his bosom, but his coronary organ is moving because of a ". . . dark-haired beauty with silver eyes . . .", which same eyes, a few pages later, are described as having ". . . a flame that is black . . ." leaping within them. I mean, really! A bit of this goes a long way, and a book of it drives one absolutely to the brink. "After an age, she spoke: . . . Night immortal . . . A grin of pain made his mouth a bow, his teeth the arrows, clenched . . . Morning's pink parasol opened above the tangled hair of the

clouds . . ." This man has unenviable talent for *inventing* clichés.

There is a great deal more, but this sample will suffice. The author undoubtedly has a tin ear for the meanings and nuances of language. One of his characters refers to a holy whorehouse as a "Fornicatorium." Undoubtedly a back construction of his from *vomitorium*, the neuter form of *vomitorius*, though any first form Latin scholar will tell you that *vomitary* is to be preferred. This same student will also know that *fornicate*, from *fornicatus*, the past participle of *fornicare*, means an arch or vault, or arched basement occupied by members of the lower class, or a brothel, and the meaning is derived from furnace or oven. What the terrible, repetitive combined form *fornicatorium* could possibly mean I would not venture to guess, or how this word came to

be on the lips of the peasantry of a future race of superstitious hindoes I cannot possibly imagine.

I will not discuss the perversion of language that permits a character to say in anger—not in jest!—"Yes, Mara, there is a deathgod," and then a few lines later, ". . . each man kills the thing he loved . . ." I hesitate to mention the one-sentence paragraphs which stud the book like carbuncles—five in a series at one point. I will only say that words are an author's only tool, and words used out of context, used incorrectly, used with useless repetition, and used to conceal rather than reveal, are words that convey no meaning. Only pain.

If one should ask me do I like this book, I would answer *no*. You are welcome to my copy. It is back in the coal hod.

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# BRIAN W. ALDISS

## LONDON LETTER

*From the other side of the Atlantic our Special Correspondent puts us in the picture of the swinging London science fiction scene.*

I should be sorry if Marshall McLuhan had his way and print disappeared from the earth. I'm a compulsive collector of newspapers clippings—you could say I have drawers full of them.

Trying to find room on my desk to type this London letter, I make a collage of the last week's clippings. Hedged into lines of Amazing print, the headlines read like this: DEAD SATELLITE REVIVES; OBITUARY: PRINCE YOUSOUPOFF Assassin of Rasputin; PROPHET OF THE SPACE AGE; SVETLANA—LIFE WITH FATHER; MARX, FREUD, MCLUHAN; SPLIT ALL THE WAY WITH LBJ; MEGACITY EXPLOSION. Some of the world's preoccupations, some of mine.

McLuhan has just hit Britain with four books published the same day. What they call saturation booming. McLuhan had the idea in the fifties that the all-important news conveyed by the front page of a newspaper was not any one item but the juxtaposition of all items; he called the front page a symbolist landscape. Maybe William Burroughs developed this conception in some of his ultra-sci-fi. You must allow Burroughs all honour

for trying to expand the boundaries of fiction, even if you feel he has burst far beyond what is permissible.

My very partial collection of this week's cuttings gives a glimpse of an exciting and widening world. I draw from it the sort of hallucinatory perspectives that I once gathered from science fiction. Instead of the Lensmen and the warring powers of Arisia and Boskone, the universe of my mind is filled with the mythical figures of LBJ and Stalin's daughter, and such sinister high priests as Freud, McLuhan, and Rasputin, while, in the background, streaming like the figures in a frieze up and down the ramps of life and death, go the people of our exploding world.

Why don't I write a novel on such a theme?

Because I haven't the confidence. How could I come up to the real thing? Did you read Svetlana's book, with such scenes as the one where she and Stalin walk across the deserted Kremlin at night to see a film in an old palace there, while behind them go the bodyguards, and the armoured cars rumble slowly forward behind the bodyguards? Good God, how do you compete with that?

The creators of the great SF sagas, Skylark Smith, Asimov, Bester, van Vogt, were full of confidence, even if it was sometimes misplaced. But their myth figures, their complexities, their menaces, have come true; we now live in a paranoid SF-world, and SF itself has to find another way out—and that holds for the fantasy as well as the realist stuff.

This sort of idea has long been hanging in the wings of English SF; our scene, so small compared with American fandom, burns with argument. At the centre of the argument—also aflame!—is the one and only NEW WORLDS, edited by the one and only Mike Moorcock. And I have to admit that, even while I'm taking the world view and worrying about why our politicians are so ineffectual or whether this anti-missile curtain does not represent an escalation of world-madness, or why the Russians are courting the Arabs and Turks, what really grips my heart is whether NEW WORLDS is going to survive.

NEW WORLDS is no longer just a magazine, and therefore obsolescent by McLuhan standards. It is a banner, a battle-cry! It is British SF. It has survived twenty-one years and five or six publishers. To begin with, it needed plentiful transfusions of American blood. Now we hope that perhaps we can repay some of that blood—the signs are good, for, since Mike took over, the new excitement is having its effect on Australia and the Scandinavian

countries (which, as advanced industrialised nations, should have their own flourishing SF).

What NEW WORLDS needs at present is a new publisher. We have an Arts Council grant, but the old publisher has pulled out. Will the issue after next be the last? There I have to leave you as it finds me at present, in suspense!

This paralysis of suspense is a contemporary life-mode. Vietman seems to show that force and action don't always have that much effect—not so much, maybe, as a group of men conferring far from battle. Inaction—that's where the real action is nowadays, and we are all involved in it. Europe, in particular, is caught between the tensions emanating from East and West; its drama is one of immobility—all the swinging in Swinging London goes on while you stay put in one pad, or on one square yard of floor.

So perhaps SF should take cognizance of such facts if it is to move with the age, as it once did. Of course, wild tales of action will still be told; they're fun and escapism. Yet there has always been a small but honourable proportion of SF written for real. Maybe that proportion will click home with a drama of inaction: men sitting round a table summing each other up, all novel long, nothing moving but fate, the silence broken only by stillness.

I hope you read it in NEW WORLDS!

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